GeoVision inc
The Vision of Security

GV-Hot Swap DVR System

User's Manual

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GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: 886-2-8797-8377
http://www.geovision.com.tw

The Windows XP Embedded is the componentized version of Microsoft Windows XP Professional, forsaking much functionality that Windows XP Professional provides and meeting the specific requirements of GV-Hot Swap DVR System. For details on embedded operation systems, please visit Microsoft's website.

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December 2009

User's Manual for GV-Hot Swap DVR System

Welcome to the GV-Hot Swap DVR System User's Manual.

The Manual provides an overview of the GV-Hot Swap DVR System and its accessories. It also includes the instructions to guide you through the installation and use of the GV-Hot Swap DVR System:

- **Chapter 1, Introduction**

  Identifies the GV-Hot Swap DVR System's accessories and options.

- **Chapter 2, Overview**

  Identifies the GV-Hot Swap DVR System's components.

- **Chapter 3, Getting Started**

  Provides step-by-step instructions on setting up the GV-Hot Swap DVR System.

- **Chapter 4, DVR Health Analysis**

  Introduces how to collect data to obtain the service of DVR health analysis from GeoVision.

- **Chapter 5, Troubleshooting**

  Suggests courses of action if the GV-Hot Swap DVR System doesn't seem to be working properly.

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Regulatory Notices

RoHS Compliance

The Restriction of Hazardous Substances (RoHS) Directive is to forbid the use of hazardous materials of production. To meet the RoHS Directive requirements, this product is made to be RoHS compliant.

WEEE Compliance

This product is subject to the Waste Electrical and Electronic Equipment (WEEE) Directive and made compliant with the WEEE requirements.

Safety Instructions

Observe these safety instructions to help ensure against injury to yourself and damage to the product.

- **Read** all safety and installation instructions before you operate the product.
- **Do not operate** the product in high humidity areas or expose it to water or moisture.
- **Do not put** the product in an unstable, a slanting or vibrated place.
- **Do not block** any ventilation opening.
- **Do not install** the product near any heat sources such as radiator, heat register or other apparatus that produce heat.
- **Operate** the product using only the type of power source indicated on the marking label.
- **Do not defeat** the safety purpose of the grounding-type plug. A grounding plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- **Do not overload** wall outlets or extension cords, as this may cause fire or electric shock.
- **Do not use** the product when abnormality occurs, such as emitting smoke from the product, smelling burning, being damaged by drop, invasion of foreign objects inside the product, etc. Be always sure to remove the AC adaptor at once and contact your dealer.
- **Do not use** accessories or attachments not recommended by the manufacturer, as they may cause hazards and void the warranty.
- **Do not attempt** to service the product yourself, as removing the casing may expose you to dangerous voltage and void the warranty.

Chapter 1 Introduction

1.1 Models

The GV-Hot Swap DVR has the following models:

GV-4016H	- 16-channel digital video recorder - Records up to 480 (NTSC) / 400 (PAL) fps at the D1 resolution with H.264 codec - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-4008H	- 8-channel digital video recorder - Records up to 240 (NTSC) / 200 (PAL) fps at the D1 resolution with H.264 codec - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-2016H	- 16-channel digital video recorder - Records up to 480 (NTSC) / 400 (PAL) fps at the D1 resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-2008H	- 8-channel digital video recorder - Records up to 240 (NTSC) / 200 (PAL) fps at the D1 resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-1480H	- 16 / 32-channel digital video recorder - Records up to 960 (NTSC) / 800 (PAL) fps at the CIF resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-1240H	- 8 / 16 / 32-channel digital video recorder - Records up to 480 (NTSC) / 400 (PAL) fps at the CIF resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-1120H	- 16 / 32-channel digital video recorder - Records up to 240 (NTSC) / 200 (PAL) fps at the CIF resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-1016H	- 16 -channel digital video recorder - Records up to 480 (NTSC) / 400 (PAL) fps at the D1 resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays
GV-1008H	- 8 -channel digital video recorder - Records up to 240 (NTSC) / 200 (PAL) fps at the D1 resolution - Has the option of 4 / 8 / 20 hot-swap SATA drive bays

GV-NVRH	**NVR (GV)** - 4 / 8 / 12 / 16 / 20 / 24 / 28 / 32-channel digital video recorder - Has the option of 4 / 8 / 20 hot-swap SATA drive bays - Extends compatibility to GeoVision IP devices only **NVR** - 1 / 2 / 4 / 6 / 8 / 10 / 12 / 14 / 16 / 18 / 20 / 22 / 24 / 26 / 28 / 30 / 32-channel digital video recorder - Has the option of 4 / 8 / 20 hot-swap SATA drive bays - Extends compatibility to GeoVision and third-party IP devices **NVR (Combo)** - Includes combined options of NVR (GV) Dongle and NVR Dongle with the limit of 32 channels in total. Inform your sales representatives of the exact number of GV IP channels and third-party IP channels you need. - Has the option of 4 / 8 / 20 hot-swap SATA drive bays - Extends compatibility to GeoVision and third-party IP devices

Note:

1. The 20-bay models of GV-Hot Swap DVR are available upon special request with longer lead time. Please contact your sales representative for further information.
2. A necessary dongle used to run GV-NVRH is internally inserted.

1.2 Options

Optional devices can expand your GV-Hot Swap DVR's capabilities and versatility. Contact your dealer for more information.

GV-Video Loop Through Card ＊	This card can take the video signal from the GV-Hot Swap DVR and then split it into 16 signals while maintaining video quality. It can meet the need for multiple spot monitors.
GV-IO 12-In Card	With 12-point digital inputs, this card can expand the GV-Hot Swap DVR up to 16 sensor inputs.
GV-IO 12-Out Card	With 12-point relay outputs, this card can expand the GV-Hot Swap DVR up to 16 alarm outputs.
GV-Multi Quad Card ＊	With this card, the GV-Hot Swap DVR can connect up to 5 TV screens. The screen divisions on the TV screens are definable.
GV-I/O USB Box	GV-I/O USB Box provides 16 inputs and 16 relay outputs, and up to 9 GV-I/O USB Boxes can chain together to expand the use. However, 16 inputs are only supported when it is used with GV-System version 8.2 or later.
GV-Data Capture V3 Box	GV-Data Capture V3 Box can integrate the GV-Hot Swap DVR to an electronic POS system, while GV-Data Capture V3E Box can establish such integration through LAN or Internet.
GV-Hub Box	An easy way for serial port extension. This hub can add 4 RS-232/RS-485 serial ports through the GV-Hot Swap DVR's USB port.
GV-COM Box	This unit can add 1 RS-232/RS-485 serial port through the GV-Hot Swap DVR's USB port.
GV-IO Box (4 Ports)	GV-IO Box 4 provides 4 inputs and 4 relay outputs, and supports both DC and AC output voltages. A USB port is also provided for PC connection.
GV-IO Box (8 Ports)	GV-IO Box 8 provides 8 inputs and 8 relay outputs, and supports both DC and AC output voltages. A USB port is also provided for PC connection.
GV-IO Box (16 Ports)	GV-IO Box 16 provides 16 inputs and 16 relay outputs, and supports both DC and AC output voltages. A USB port is also provided for PC connection.
GV-Joystick	GV-Joystick facilitates the PTZ camera control. It can be either plugged into the GV-Hot Swap DVR for independent use or connected to GV-Keyboard to empower the operation.

	However, this device can only work on GV-System version 8.2 or later.
RAID Controller (0 / 1 / 5 / 6)	The RAID Controller supports a maximum of 8 SATA hard drives and enhances data protection. The supported RAID types include RAID 0, RAID 1, RAID 5 and RAID 6. This card is only available in the 8-bay models of GV-Hot Swap DVR.
RAM	Multiple options for the amount of RAM are available to meet different needs.
Hard Drive	Multiple options for the HDD capacity are available to meet different needs.
GV-DOM (Disk on Module)	GV-DOM, a solid-state hard drive, is used for operating system and system software to get higher performance under harsh conditions. If this device is added onto the GV-NVRH , the USB ports on the front panel will not be available for use.
AVP Dongle	Internally inserted to the GV-Hot Swap DVR, the AVP Dongle provides the functions of advanced video analysis in GV-System: Panorama View, Video Stabilizer, Defogging, Crowd Detection, Advanced Scene Change, Advanced Missing Object and Advanced Unattended Object.

Note:

1. The devices with ＊ marks are not available to the models of GV-NVRH and GV-4008H/GV-4016H.
2. The purchased GV-series cards will be added on the GV-Hot Swap DVR before shipment.

Chapter 2 Overview

2.1 Front View

2.1.1 20-Bay Models

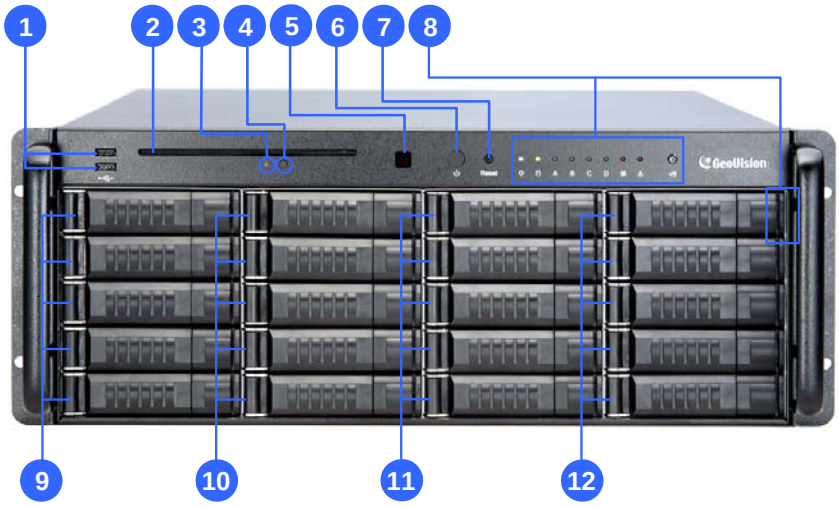


Figure 2-1

No.	Name	No.	Name
1	USB Port x 2	7	Reset Button
2	DVD(±) RW Drive	8	LED Panel (See *2.2 LED Panel View* for details.)
3	DVD(±) RW Drive Activity LED	9	HDD Group A
4	DVD-eject button	10	HDD Group B
5	Built-in GV-IR Remote Control Receiver	11	HDD Group C
6	Power Button	12	HDD Group D

2.1.2 8-Bay Models

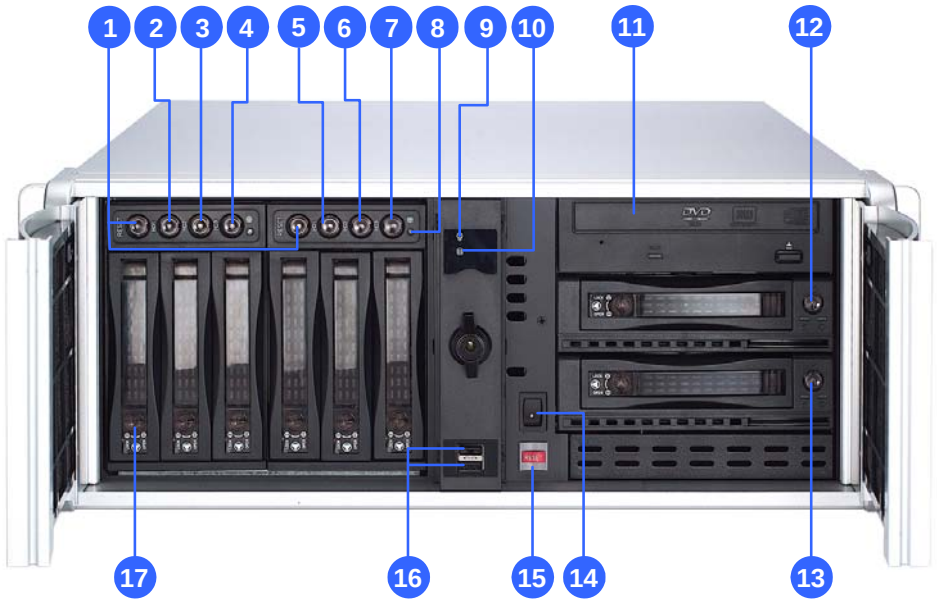


Figure 2-2

No.	Name	No.	Name
1	SATA Backplane Reset Switch	10	Hard Drive Activity LED
2	HDD 1 (Power Switch)	11	DVD(±) RW Drive
3	HDD 2 (Power Switch)	12	HDD 7 (Power Switch)
4	HDD 3 (Power Switch)	13	HDD 8 (Power Switch)
5	HDD 4 (Power Switch)	14	Power Switch
6	HDD 5 (Power Switch)	15	Reset Button
7	HDD 6 (Power Switch)	16	USB Port x 2
8	Fan Sensor LED	17	Safety Lock
9	Power LED		

2.2 LED Panel View

A LED panel on the front door provides a quick indication of the activity status of hard disk drives. Note the panel design and function vary from model to model.

2.2.1 20-Bay Models

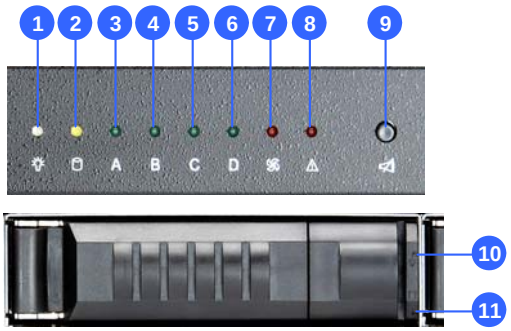


Figure 2-5

No.	LED	Description
1	Power LED	The LED shines when the power is on.
2	HDD Activity LED	The LED shines when the HDDs are writing or reading data.
3	HDD Group A LED	The LEDs of HDD Group A to D shine when the power is on.
4	HDD Group B LED	
5	HDD Group C LED	
6	HDD Group D LED	
7	System Alert LED	The LED shines and the system sounds on if one fan stops or the GV-Hot Swap DVR is overheated.
8	Alert LED	(reserved)
9	Alarm Mute Button	Press this button to silence the alarm when the System Alert LED shines and the system sounds.
10	HDD Power LED (White)	The LED shines white after the HDD is installed.
11	HDD Activity LED (Blue)	The LED shines blue if the HDD is reading or writing data.

Note: The HDD Activity LED (No.11) only shines if the installed HDD is SATA II.

2.2.2 8 / 4-Bay Models

Figure 2-6

LED Color	Description
Gray	- No HDD is assigned to this LED. - GV-System is not started.
Green	A HDD is assigned to this LED.
Red	The HDD is full.
Flashing Green	GV-System is recording or the video / audio files are played back with ViewLog.
Flashing Red	The HDD is recycling.
Flashing Green and Red	The operating system or GV-System freezes.

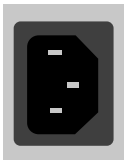
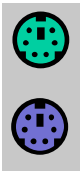
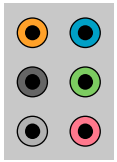
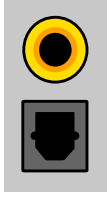
Note: When the GV-System or Hot Swap HDD Tool is closed, the LEDs will not change their colors even if the status of HDDs change.

Chapter 3 Getting Started

3.1 Basic Installation

This section describes basic installation required to program and operate the GV-Hot Swap DVR. Up to 2 monitors can be connected to the GV-Hot Swap DVR.

Connect the peripherals and accessories to the following connectors on the GV-Hot Swap DVR.

No.	Connectors	Name
1		Power Connector
2		PS/2 Mouse Input PS/2 Keyboard Input
3		Light Blue: Audio Line In Port Lime: Audio Line Out Port Pink: Audio Microphone Port Orange: Center/Subwoofer Out Port Black: Rear Speaker Out Port Gray: Side Speaker Out Port
4		Ethernet Port
5		USB 2.0 Ports
6		Coaxial S/PDIF Out Port Optical S/PDIF Out Port*
7		IEEE 1394a Port Connector*

8		External SATA Port*

Note: The connectors marked with * may not be available depending on your models of GV-Hot Swap DVR.

Follow the procedures below to complete the basic installation.

1. Using the supplied power cord, connect one end to the power connector (No.1) and the other end to the power outlet.
2. Connect the keyboard to the PS/2 input (No.2).
3. Connect the mouse to the PS/2 input (No.2).
4. Using the VGA cable supplied by the monitor manufacturer, connect the VGA monitor. See *3.1.1 Connecting Monitors.*
5. For video lost beep, connect speakers to the Audio Line Out port (No.3).
6. Using the RJ-45 cable, connect one end to the Ethernet port (No.4) and the other end to Network.

Note: The monitor you use must be capable of having a screen resolution of 1280 x 1024 and display color of 32 bits.

3.1.1 Connecting Monitors

See the figure below to connect the monitors to the VGA ports on the GV-Hot Swap DVR. The maximum number of monitors that can be connected at a time is two. Choose only two of these three VGA outputs to connect.

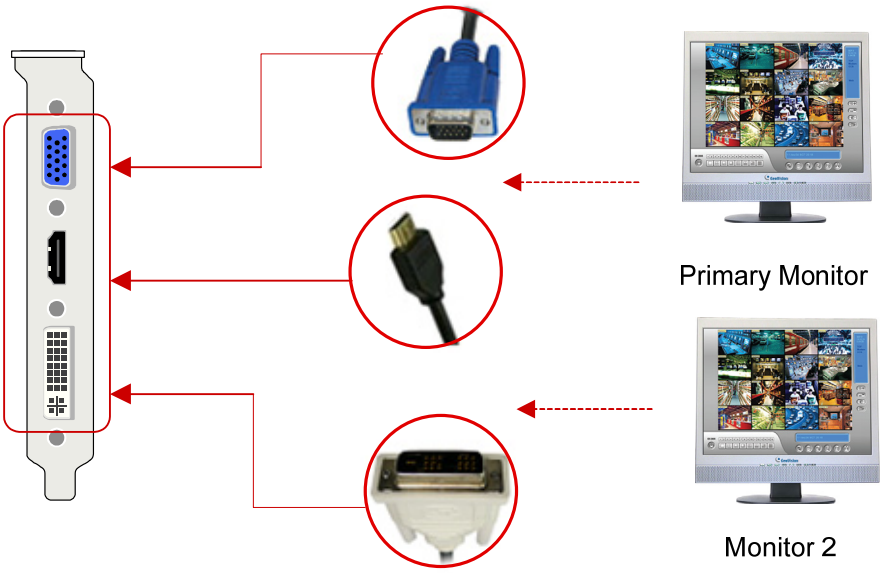


Figure 3-1

3.2 Turning on the Power

Once the above hardware is properly connected, it is the time to turn on the GV-Hot Swap DVR. To turn on the power, follow these steps:

1. Turn on the monitor.

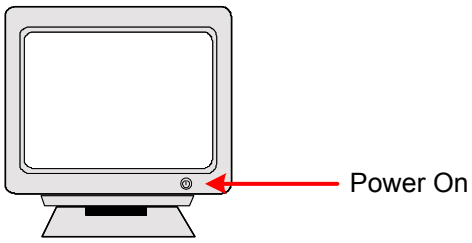


Figure 3-2

2. Turn on the AC power switch on the rear panel.

20-Bay Models

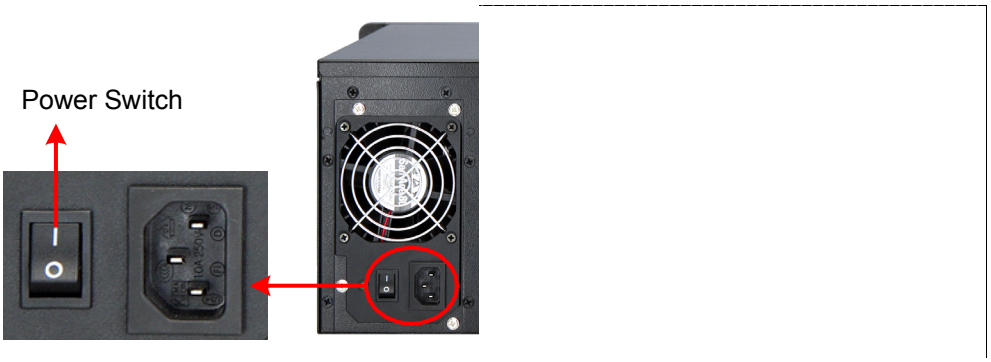


Figure 3-3

8 / 4-Bay Models

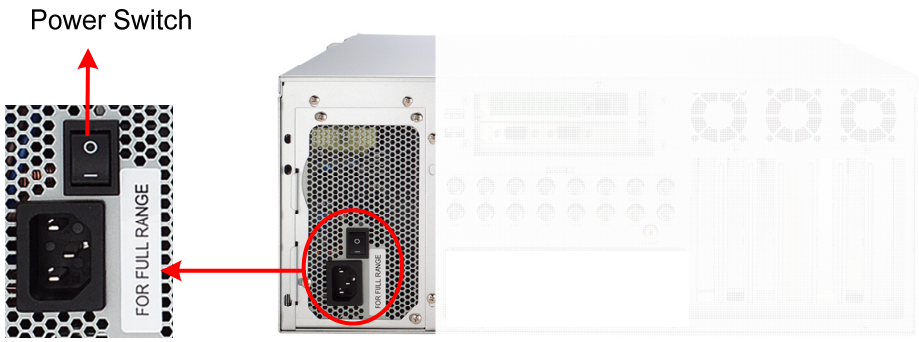


Figure 3-4

3. Turn on the main power switch on the front panel.

20-Bay Models

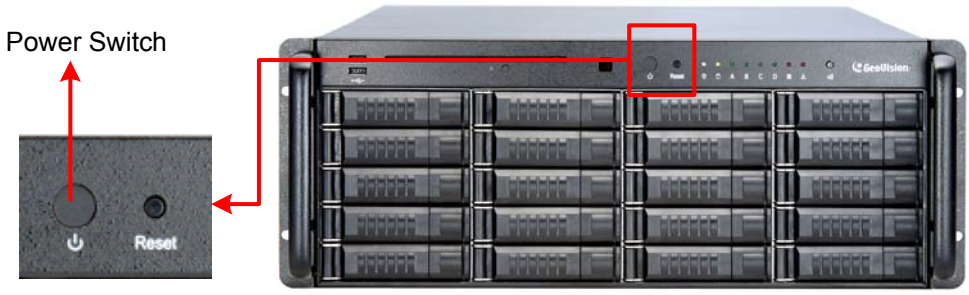


Figure 3-5

8 / 4-Bay Models

Figure 3-6

The GV-Hot Swap DVR will run a series of self-tests, and later series of messages may be displayed as the various hardware and software subsystems are activated. After this is finished, the GV-System Software (Multicam Surveillance System) should load automatically and bring you to the main screen display of 8, 16 or 32 cameras.

Note:

1. For 20-bay models, the series of self-tests will take around 20 seconds to 2 minutes, depending on the number of installed hard drives.
2. For 20-bay models, the Power LED and the LEDs of HDD Group A to HDD Group D should shine after power is on. If any of HDD Group LEDs does not shine, please contact GeoVision.

3.3 Installing the Hard Drive

The GV-Hot Swap DVR uses SATA hard drives for video and audio data storage. Before recording, ensure to install your hard drives. Steps to install the hard drive vary from models to models. Be sure to identify your model and follow the right steps to install the hard drive.

3.3.1 20-Bay Models

1. Make sure the HDD Activity LED (No. 2, Figure 2-5) is off before you install the hard drive.
2. Slide the release latch to the right. The drawer handle pops up.

Figure 3-7

3. Pull out the drive drawer.
4. Insert the hard drive in the drawer.

Figure 3-8

5. Secure the hard drive with the 4 screws (included in the drawer), and make sure all screw heads flush with the surface.

Figure 3-9

6. Put the drawer back in the drive bay of the GV-Hot Swap DVR, and push the latch until it locks. The white LED on the drawer shines, and the hard drive is now ready to use.

3.3.2 8 / 4-Bay Models

1. Turn off the power of the drive bay. Make sure the Power LED is off.
2. Turn the safety lock to the OPEN position.
3. Push the safety lock. The drawer handle pops up.
4. Pull out the drive drawer.

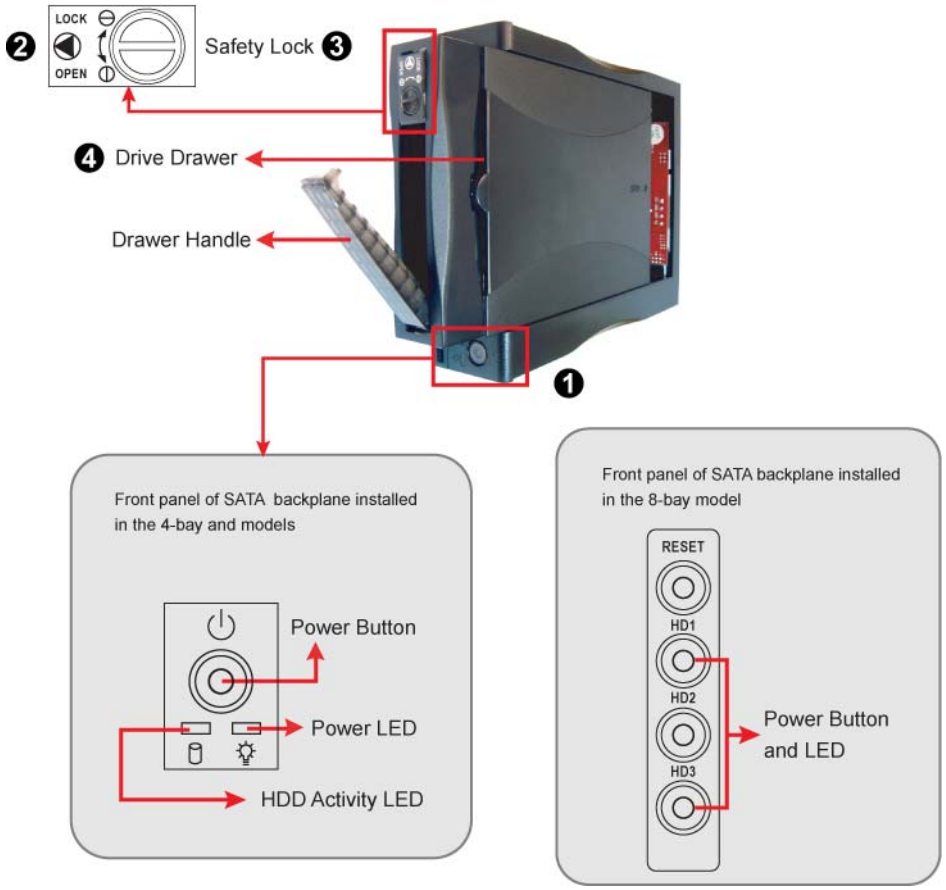


Figure 3-10

5. Remove the lid of the drawer.

Figure 3-11

6. Insert the hard drive in the drawer, and slide the lid back on.

Figure 3-12

7. Turn over the drawer, and secure the hard drive with the 4 screws (included in the drawer).

Figure 3-13

8. Put the drawer back in the drive bay of the GV-Hot Swap DVR.
9. Push the drawer handle back, and turn the safety lock to the LOCK position.
10. Press the Power button. When the Power LED indicates green, the hard drive is ready for use.

3.4 Formatting the Hard Drive

After installing hard drives to your GV-Hot Swap DVR, you may need to format them before use.

1. On the GV-Desktop, click the **Programs** button, and select **Disk Management**.

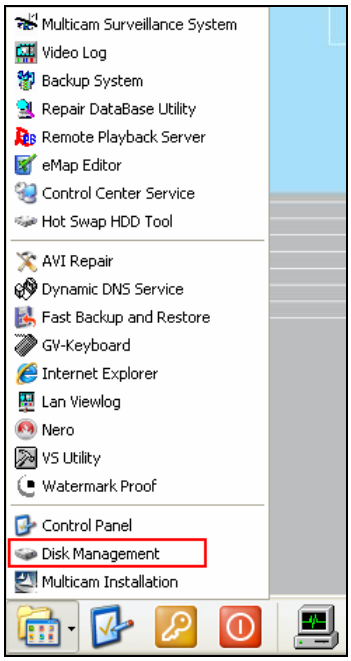


Figure 3-14

2. Type the ID and password in the dialog box. The default ID and password are "**0000**".

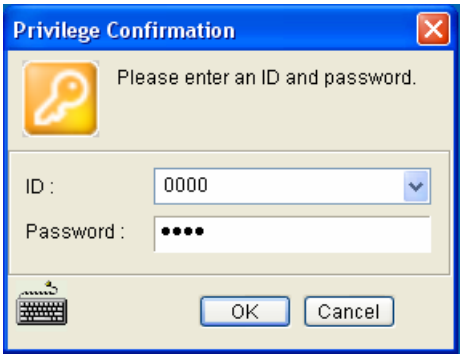


Figure 3-15

3. The Initialize and Convert Disk Wizard appears. Click **Next** to continue.

Initialize and Convert Disk Wizard
Welcome to the Initialize and Convert Disk Wizard
This wizard helps you to initialize new disks and to convert empty basic disks to dynamic disks.
You can use dynamic disks to create software-based RAID volumes that can be mirrored, or they can be striped or spanned across multiple disks. You can also expand single-disk and spanned volumes without having to restart the computer.
After you convert a disk to dynamic, you can only use Windows 2000 and later versions of Windows on any volume of that disk.
To continue, click Next.
< Back
Next >
Cancel

Figure 3-16

Note: If the Wizard does not appear, you need to initialize the drives one by one. To manually initialize a drive, right-click on the name of the drive and select **Initialize Disk**.

---

4. The screen shows the drives you selected to initialize. Make sure all drives are checked, and click **Next** to continue.

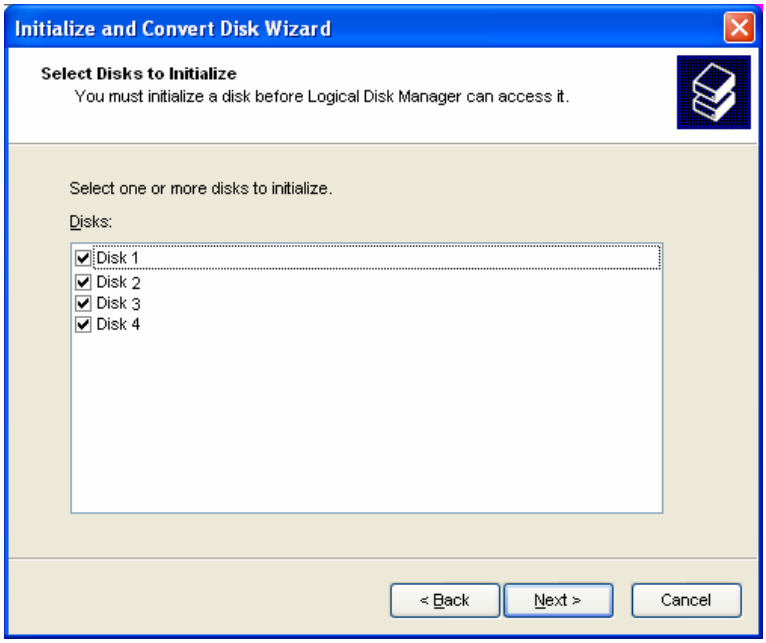


Figure 3-17

5. The screen gives you the option to convert the drives from basic to dynamic storage. Leave all drives unchecked, and click **Next** to continue.

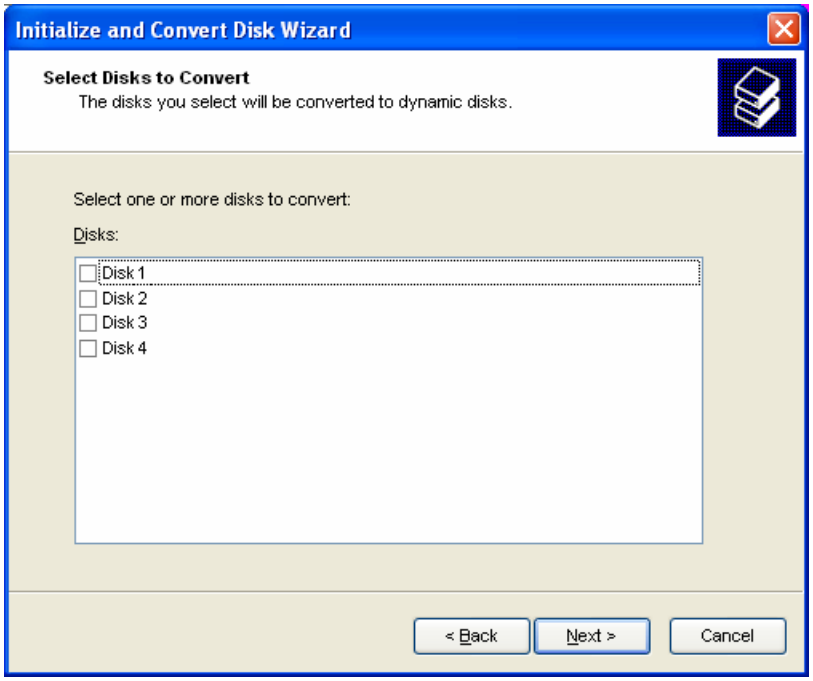


Figure 3-18

6. When the initialization is complete, click **Finish** to close the wizard.

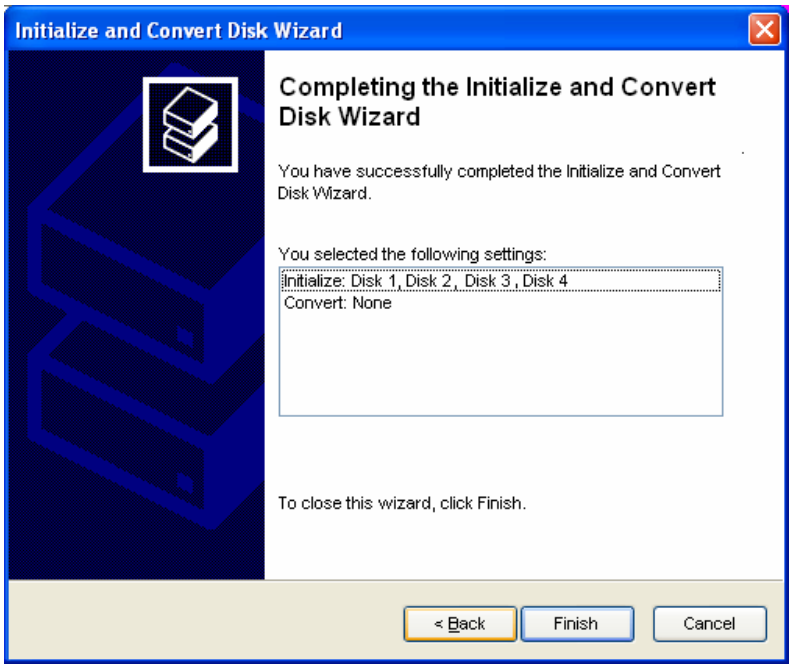

Initialize and Convert Disk Wizard
Completing the Initialize and Convert Disk Wizard
You have successfully completed the Initialize and Convert Disk Wizard.
You selected the following settings:
Initialize: Disk 1, Disk 2, Disk 3, Disk 4
Convert: None
To close this wizard, click Finish.
< Back
Finish
Cancel

Figure 3-19

7. Right-click in the unallocated space of a new drive, and select **New Partition**.

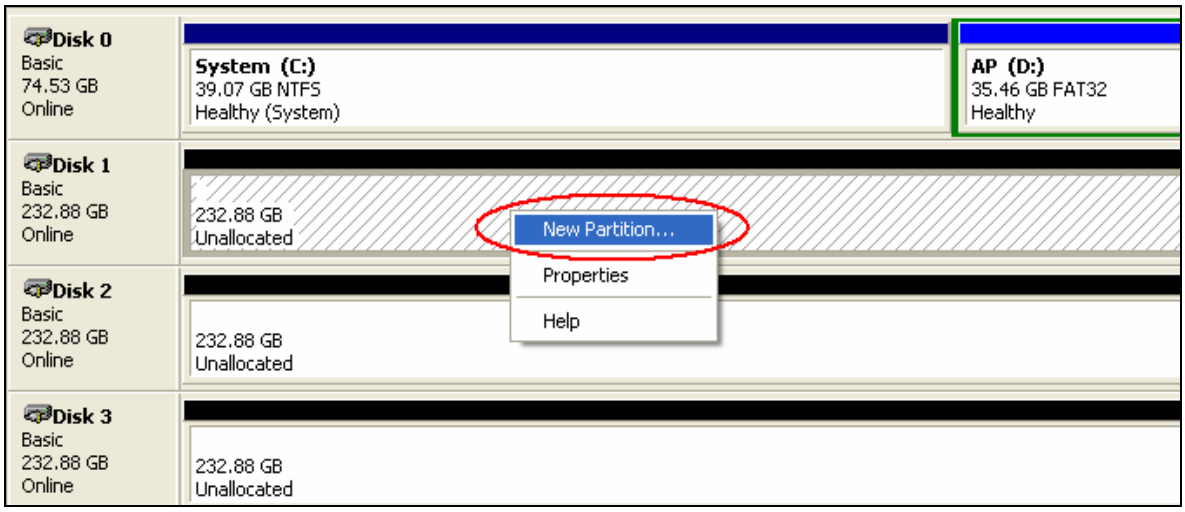


Figure 3-20

8. The New Partition Wizard appears. Click **Next** to continue.

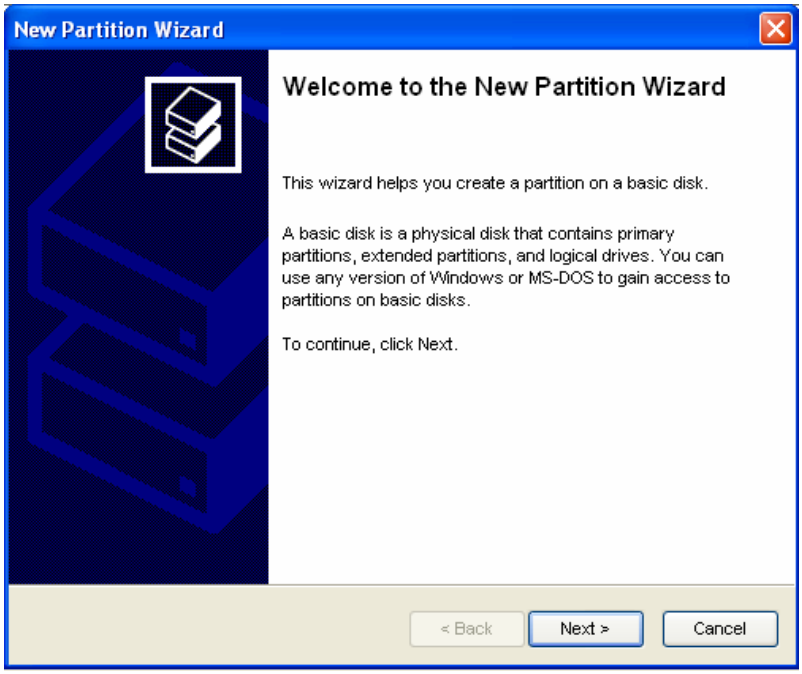

New Partition Wizard
Welcome to the New Partition Wizard
This wizard helps you create a partition on a basic disk.
A basic disk is a physical disk that contains primary partitions, extended partitions, and logical drives. You can use any version of Windows or MS-DOS to gain access to partitions on basic disks.
To continue, click Next.
< Back
Next >
Cancel

Figure 3-21

9. Select **Primary partition**, and click **Next** to continue.

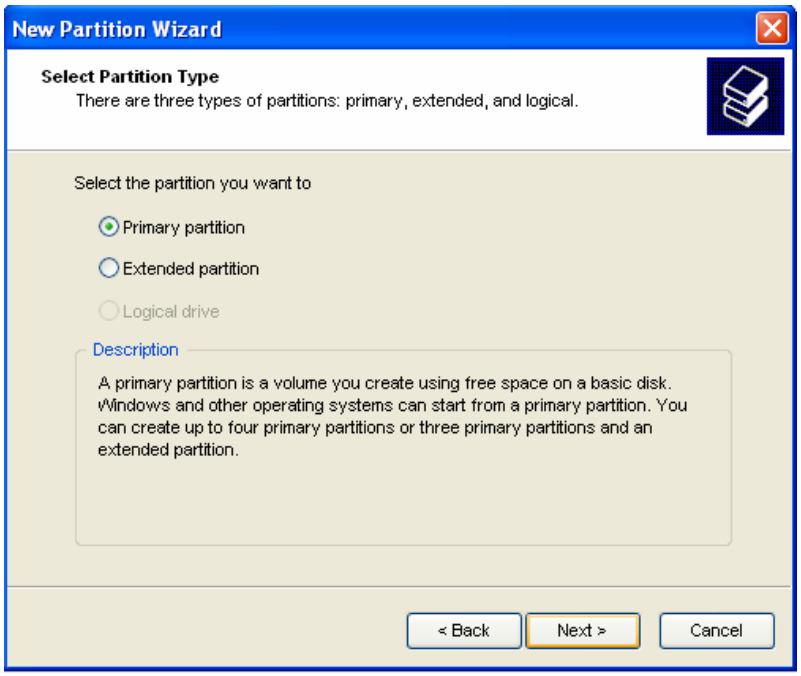

New Partition Wizard
Select Partition Type
There are three types of partitions: primary, extended, and logical.
Select the partition you want to
Primary partition
Extended partition
Logical drive
Description
A primary partition is a volume you create using free space on a basic disk. Windows and other operating systems can start from a primary partition. You can create up to four primary partitions or three primary partitions and an extended partition.
< Back
Next >
Cancel

Figure 3-22

10. The default partition size is the same as the maximum disk space. Make changes if necessary. Click **Next** to continue.

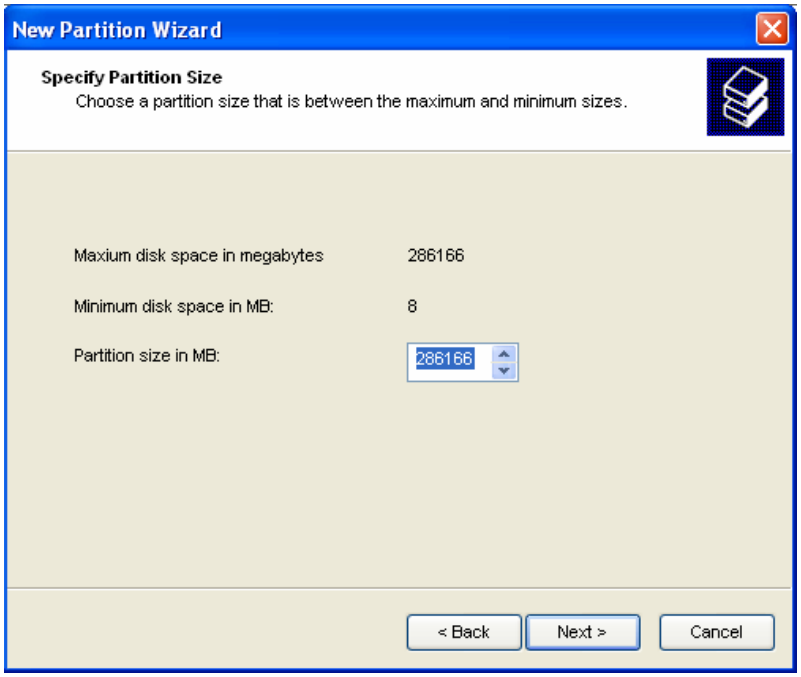


Figure 3-23

11. Assign a drive path that is not in use by other devices, and click **Next** to continue.

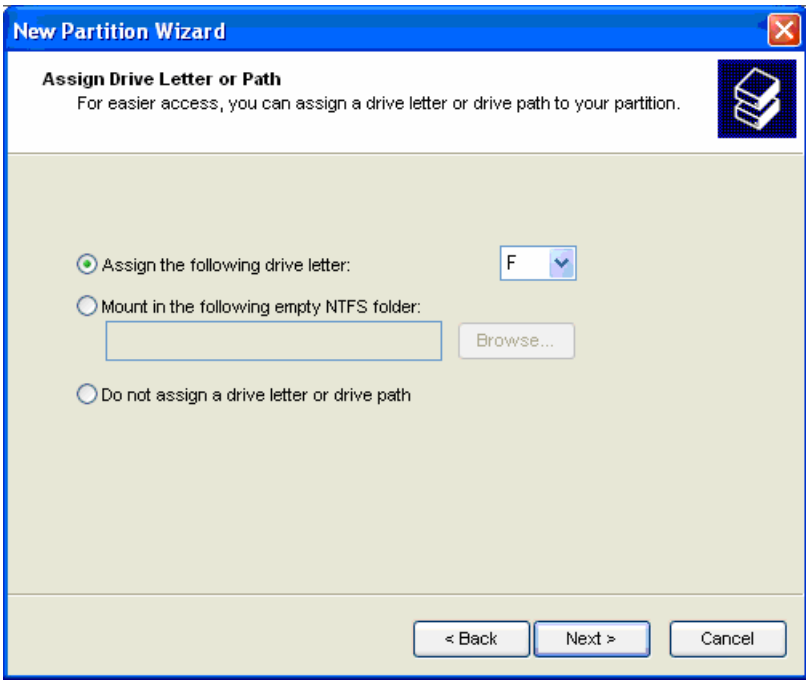

New Partition Wizard
Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.
Assign the following drive letter:
F
Mount in the following empty NTFS folder:
Browse...
Do not assign a drive letter or drive path
< Back
Next >
Cancel

Figure 3-24

Note: The default drive path starts from **F:**.

---

12. Type a name in the **Volume label** box, ex. HDD1, and click **Next** to continue.

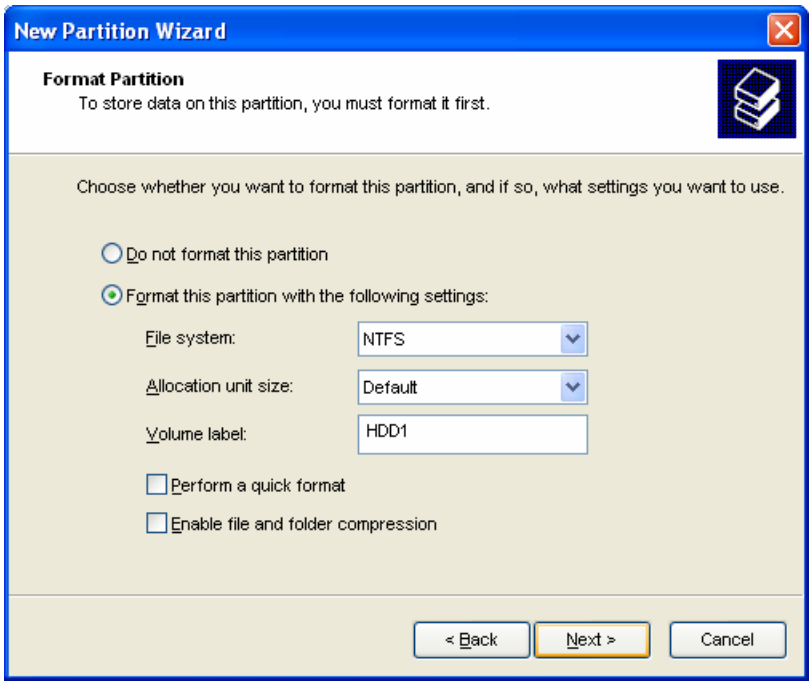

New Partition Wizard
Format Partition
To store data on this partition, you must format it first.
Choose whether you want to format this partition, and if so, what settings you want to use.
Do not format this partition
Format this partition with the following settings:
File system:
NTFS
Allocation unit size:
Default
Volume label:
HDD1
Perform a quick format
Enable file and folder compression
< Back
Next >
Cancel

Figure 3-25

13. When the formatting is complete, click **Finish** to close the wizard.

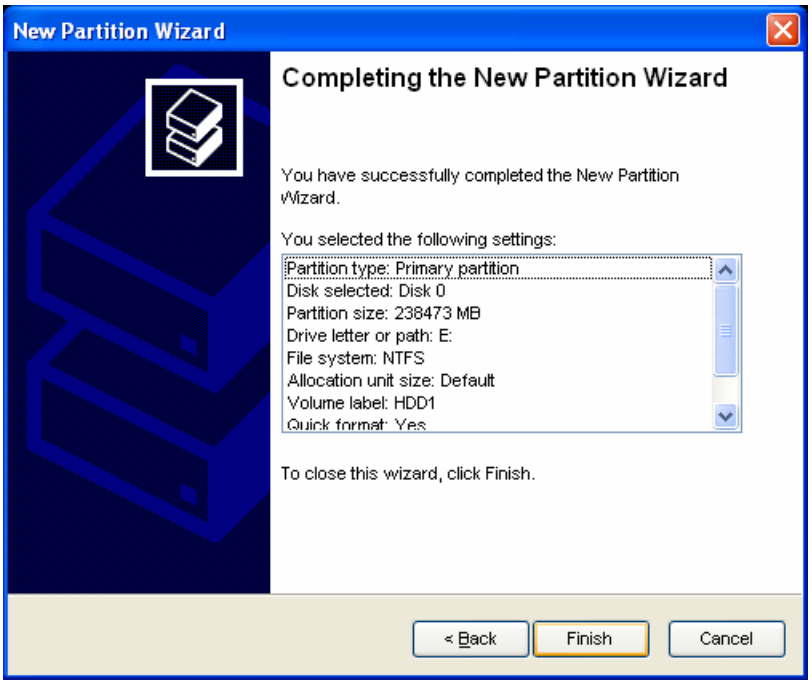


Figure 3-26

14. When the drive is successfully initialized, partitioned, and formatted, its status description should display "*Healthy*."

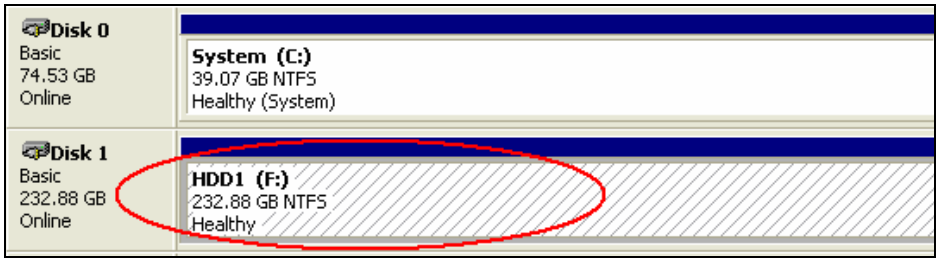


Figure 3-27

3.5 Adding the Hard Drive to the Recording Path

Before recording, you need to add the formatted hard drives to the recording path.

1. On the GV-Desktop, click the **Programs** button, and select **Hot Swap HDD Tool**. The MediaMan Tools window appears.

Figure 3-28

2. If a hard drive is already inserted, right-click it in the MediaMan Tools window, select **Add for recording**, and then select the storage group from the drop-down list.
3. If a hard drive is not inserted, follow these steps:
   A. Insert a hot-swap hard drive or plug a portable hard drive to the GV-Hot Swap DVR. This dialog box appears.

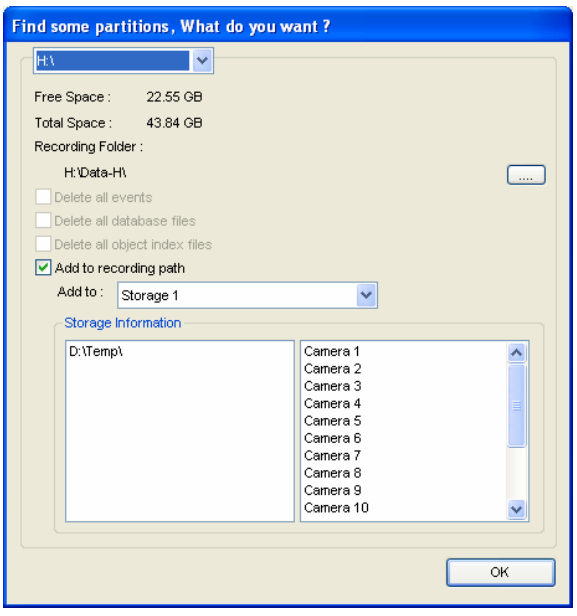


Figure 3-29

B. Select **Add to recording path**, and select the storage group from the drop-down list.

Note: Storage 1 is the default storage group.

---

4. Click **OK** to automatically configure the hard drive to the recording path.
5. In the MediaMan Tools window, if the hard drive is successfully added to store data, its Status field should display "*Standby*".

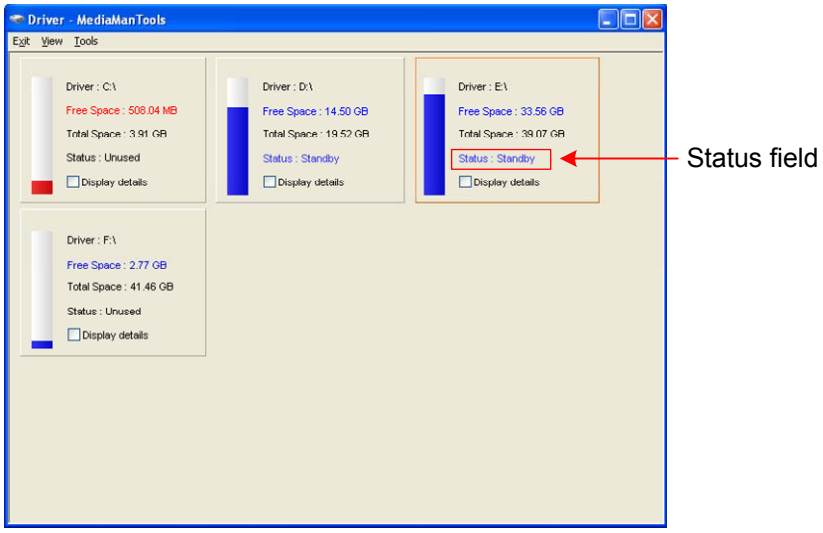


Figure 3-30

6. To add another formatted hard drive for storage, repeat the above steps.

For the details on using Hot Swap HDD Tool, see *Hot-Swap Recording*, Chapter 11, *User's Manual* on the *Surveillance System Software DVD*.

3.6 Setting Up On-Screen LED Panel

A LED panel on the screen provides a quick indication of the activity status of hard disk drives.

Figure 3-31

LED Color	Description
Gray	- No HDD is assigned to this LED. - GV-System is not started.
Green	A HDD is assigned to this LED.
Red	The HDD is full.
Flashing Green	GV-System is recording or the video / audio files are played back with ViewLog.
Flashing Red	The HDD is recycling.

1. On the GV-Desktop, click the **Programs** button, and then select **Hot Swap HDD Tool**.
2. Click **Tools** on the menu bar and select **Setup LED Panel**. This dialog box appears.

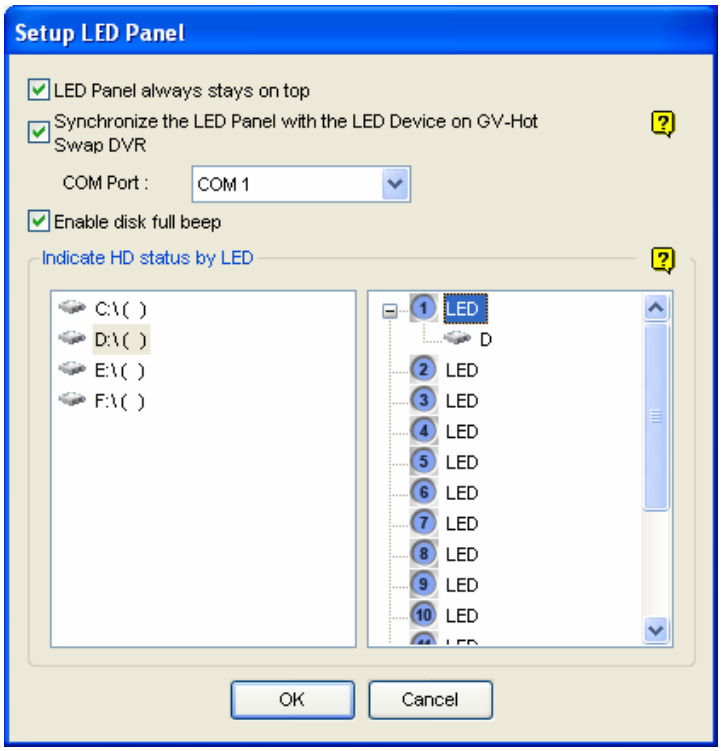


Figure 3-32

- **LED Panel always stays on top:** This option makes the LED panel stay on top of other windows when the Media Man Tools window is minimized.
- **Synchronize the LED Panel with the LED Device on GV-Hot Swap DVR:** When this option is enabled, the LED device installed on the front door of the GV-Hot Swap DVR will synchronize with the LED panel on the screen. Note this function is not available on the 20-bay model.
- **Enable disk full beep:** When the hard disk drive is full, the system sounds on. Note this function only works when speakers are connected to the GV-Hot Swap DVR.

3. By default, only the hard disk drive F will be assigned to LED. If you want to re-assign the hard disk drive or assign other drives to LEDs, freely drag and drop the hard disk drive to the desired LED on the tree.
4. Click **OK** to apply the settings, and minimize the MediaMan Tools window to display the LED panel on the screen.
5. If you want to return to the MediaMan Tools window, right-click the LED panel and select **Switch to the setup window**.

Note:

1. Because the LEDs are designed to indicate the video and audio files are being written or read, it is not recommended to assign the HDDs that store log files to the LEDs.
2. If the HDD that stores log files is assigned to a LED and its LED turns red, make sure the log files are not being written before you remove it. Otherwise, the log files might be lost during the removal.

3.7 Replacing the Hard Drive

You can replace the hard drive in the Hot Swap Drive Bay without shutting down the GV-Hot Swap DVR. Steps to replace the hard drive may vary from models to models. Be sure to identify your model before replacing the hard drive.

3.7.1 20-Bay Models

1. Make sure the HDD Activity LED (No. 2, Figure 2-5) is off.
2. Slide the release latch to the right. The drawer handle pops up.
3. Pull out the drawer slightly, and wait until the hard drive spins down.
4. Pull out the drawer completely, remove the hard drive, and then mount a new one.
5. Screw the hard drive, and make sure all screw heads flush with the surface.
6. Put the drawer back in the drive bay and slide the release latch again.

3.7.2 8 / 4-Bay Models

1. Do not turn off the power of the drive bay before you replace the hard drive.
2. Turn the safety lock to the OPEN position (see Figure 3-10).
3. Push the safety lock. The drawer handle pops up.
4. Lift the handle, pull out the drawer slightly and wait until the hard drive spins down.
5. Pull out the drawer completely, remove the hard drive, and then mount a new one.
6. Put the drawer back in the drive bay.
7. Push the drawer handle back, and turn the safety lock to the LOCK position.

3.8 Configuring an IP Address

The purpose of configuring an IP address is to support the remote monitoring, control and configuration of the GV-Hot Swap DVR over a network connection.

The GV-Hot Swap DVR is enabled for DHCP network. An IP address will be automatically allocated when the GV-Hot Swap DVR is powered up. Despite the DHCP setting, it is recommended that a static IP address be configured on the unit.

1. On the GV-Desktop, click the **Programs** button, and then select **Control Panel**.

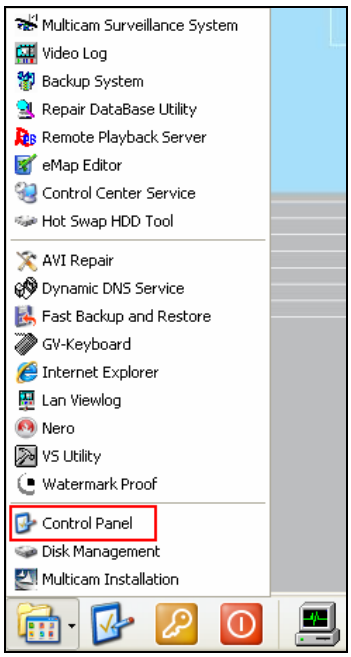


Figure 3-33

2. Type the ID and password. The default ID and password are "**0000**". The Control Panel window appears.

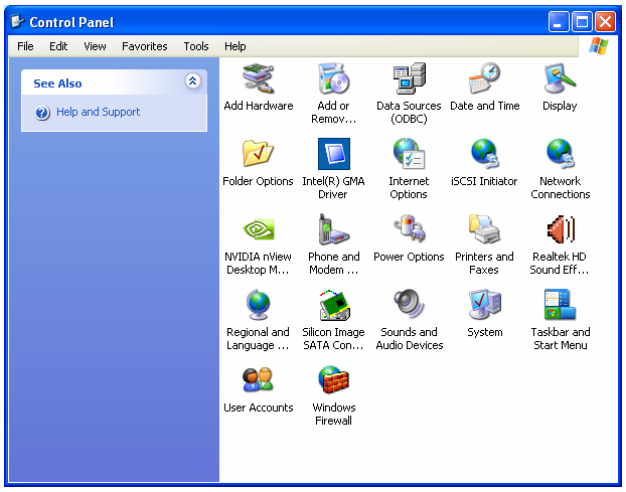


Figure 3-34

3. Double-click **Network Connections**, right-click **Local Area Connection**, and then select **Properties**.

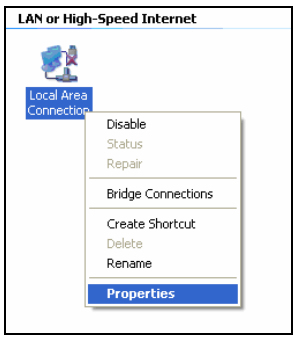


Figure 3-35

4. In the Local Area Connection Properties dialog box, select **Internet Protocol (TCP/IP)** and then click **Properties**.

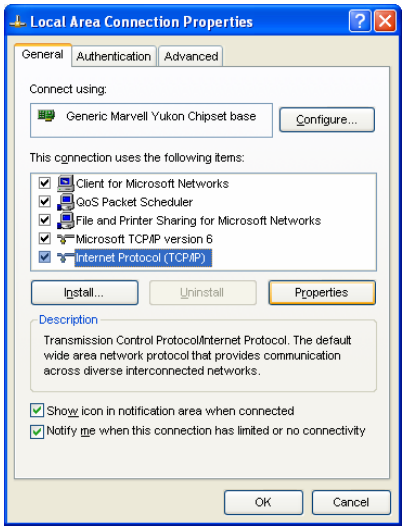


Figure 3-36

5. Select **Use the following IP address**, type the IP information in the fields, and click **OK** to finish the setting.

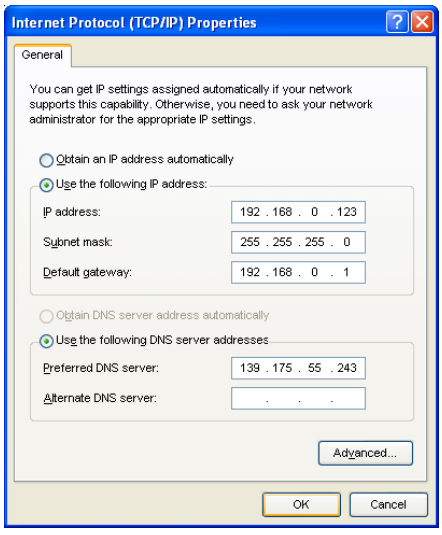

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 0 . 123
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
192 . 168 . 0 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
139 . 175 . 55 . 243
Alternate DNS server:
Advanced...
OK
Cancel

Figure 3-37

3.9 Exiting to Windows

The unit is protected by GV-Desktop that is limited to run the selected programs. If you need to exit to Windows desktop, follow these steps.

1. Exit the main screen to display the GV-Desktop screen.

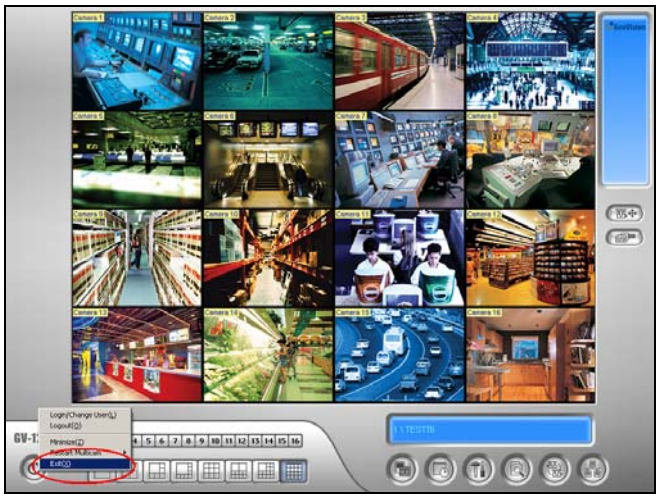


Figure 3-38 Exit the main screen

2. Click the **Settings** button, and type the valid ID and password. The default ID and Password are "**0000**". The Settings dialog box appears.
3. Under Desktop Type, select **Windows** from the drop-down list, and click **OK**.
4. Click the **Log Off** button, and enter the valid ID and Password to display the Windows desktop.

Figure 3-39 The GV-Desktop

3.10 Returning to GV-Desktop

Click the Windows **Start** button, point to **All Programs**, click **GVCombo**, and click **Key Lock Utility**.

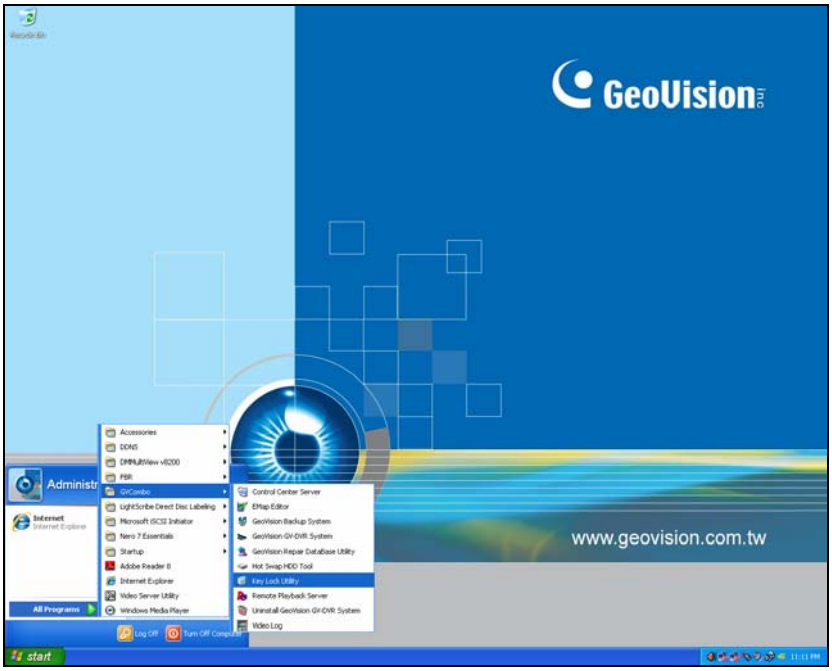


Figure 3-40 Windows XP desktop

3.11 Twin View Display

You can display Main System and ViewLog in two separated monitors.

1. Follow Steps 1 and 2 in *3.8 Configuring an IP Address* to access the Control Panel window. See Figure 3-36.
2. In the Control Panel window, double-click **Display** and then click the **Settings** tab.

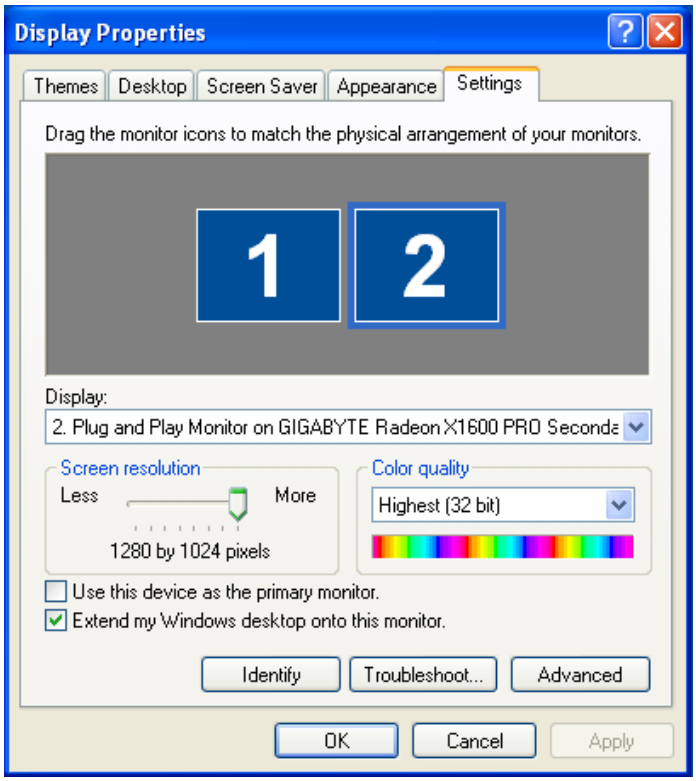


Figure 3-41

3. Click the **Display** list. If you do not see multiple monitors listed, check if your additional monitors are connected with the computer properly.
4. Select the primary monitor from the list, and select **Use This Device as the Primary Monitor**.
5. Select additional monitors from the list, and select **Extend my Windows desktop onto this monitor** for each monitor.
6. Click **Identify**. Windows XP displays a large number to identify your monitors. Drag and drop the monitor icons to match the physical arrangement of your monitors.
7. Click **OK**.

8. Click the **Up** button on the toolbar, go the system folder and locate **DMPOS.exe**.

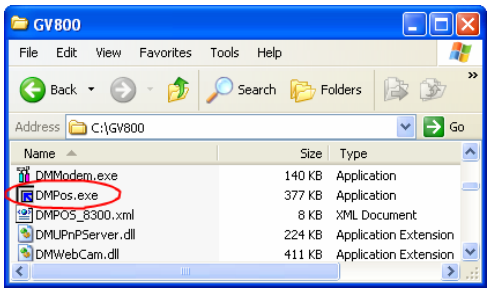


Figure 3-42

9. Double-click **DMPOS.exe**. The Set Application Function Position dialog box appears.

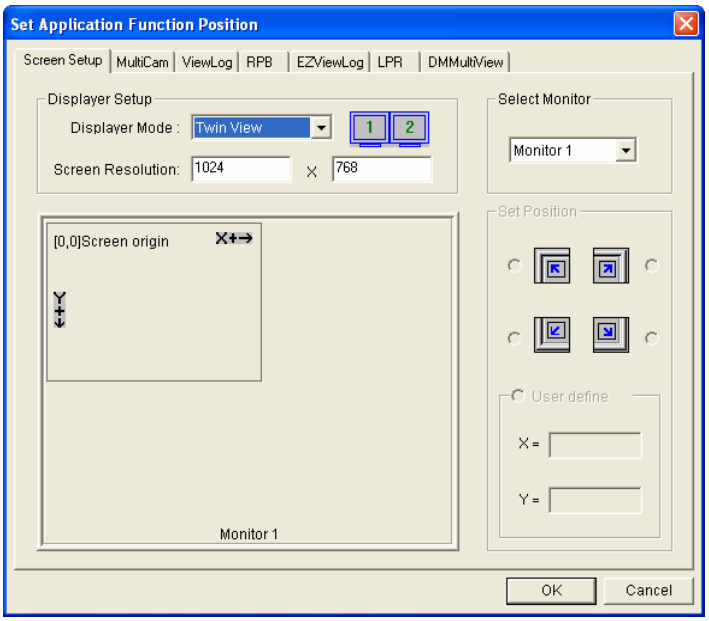


Figure 3-43

10. In the Screen Setup tab, select **TwinView** from the Displayer Mode drop-down list.
11. In the MultiCam tab, select **Monitor 1** from the Select Monitor drop-down list.
12. In the ViewLog tab, select **Monitor 2** from the Select Monitor drop-down list.
13. Click the **OK** button and start GV-System, which should appear on monitor 1.
14. Click the **ViewLog** button on the main screen and select **Video/Audio Log** from the menu. ViewLog should appear on monitor 2.

Note: The **Set Position** option allows you to determine where to position GV-System on Windows. It is only necessary if the panel resolution of your GV-System is set to be 800 x 600 and your Windows desktop is set to be 1024x768 or higher. It is recommended that resolution of both GV-System and Windows desktop should be set the same. For details on how to set the resolution for GV-System, refer to *Panel Resolution* in Chapter 1, *User's Manual* on the Surveillance System Software DVD.

3.12 Digital Matrix

To create more screen space to display multiple channels, such as 32 channels, Digital Matrix is thus introduced to provide a way to view and manage multiple monitor displays.

The Digital Matrix includes these features:

- **Live view:** You can set different live views and screen divisions for each monitor.
- **Automatic channel scan:** You can set up to 16 scanned pages with different screen divisions and channels for each monitor.
- **Pop-up Alert:** You can be alerted by pop-up live videos when motion is detected or I/O devices are triggered.

3.12.1 Activating Multiple Monitors

Use Windows Display Property to activate multiple monitors. Here we use Windows XP to illustrate the steps of configuration.

1. Follow Steps 1 to 7 in *3.11 Twin View Display* to configure the additional monitors.
2. Start the GV-System, click the **Configure** button, click **Accessories**, select **Digital Matrix Setting**, select monitors from the **Display** list and select **Activate** for each monitor. All monitors must be activated one by one.
3. Click **Apply**. Your additional monitors should now display the channels seen on the primary monitor.

3.12.2 Setting Live View

You can set different live views and screen divisions for each monitor.

1. On the main screen, click the **Configure** button, click **Accessories**, and select **Digital Matrix Setting**. This dialog box appears.

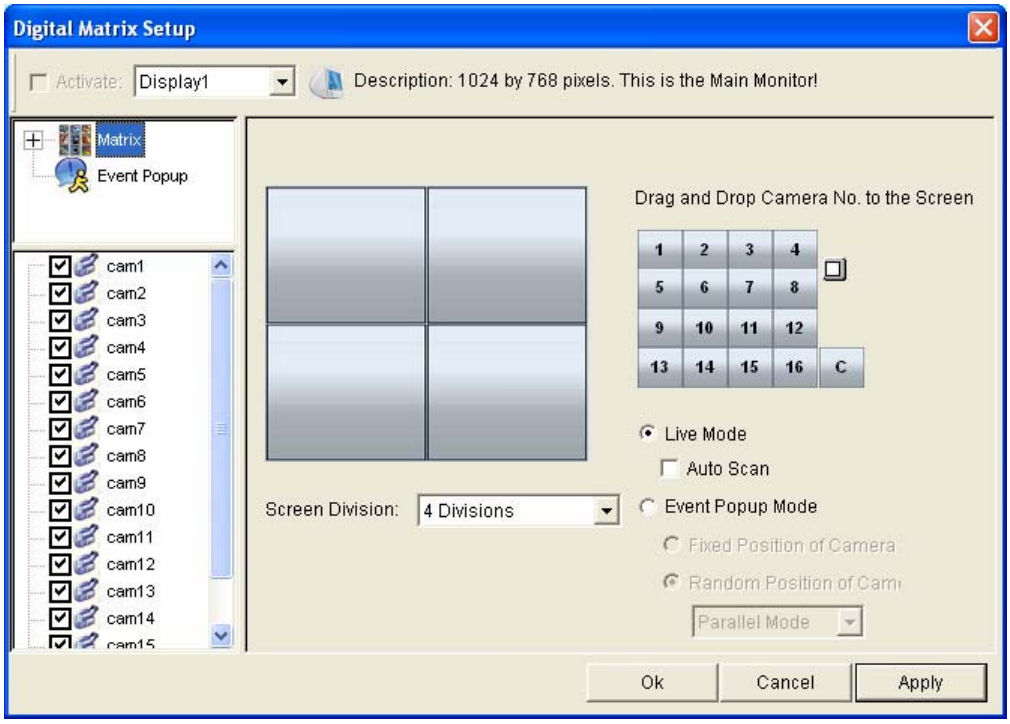


Figure 3-44

2. Use the **Display** list to select the monitor to be configured.
3. Select **Screen Division**.
4. Drag and drop the camera numbers to the desired positions on the divisions. To clear the assignment, drag and drop the “C” icon to that position.
5. Select **Live Mode**.
6. Repeat above steps to configure other monitors.
7. Click **OK** to apply the settings.

3.12.3 Setting Scanned Pages

You can set up to 16 scanned pages with different screen divisions and channels for each monitor.

1. Use the **Display** list to select the monitor to be configured.
2. In the upper-left column, expand the **Matrix** folder tree, and then click **Page 1**. This page appears.

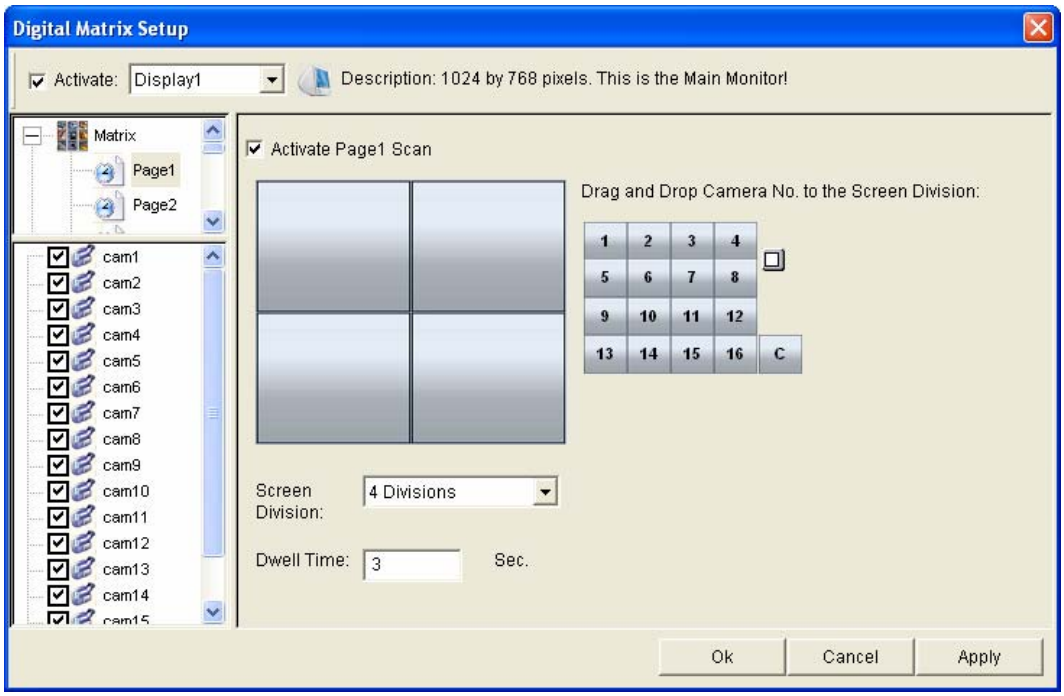


Figure 3-45

3. Select **Activate Page 1 Scan**.
4. Select **Screen Division**.
5. Drag and drop the camera numbers to the desired positions on the divisions. To clear the assignment, drag and drop the “C” icon to that position.
6. Specify **Dwell Time** for how long this scanned page remains on the monitor.
7. Repeat Steps 2 to 5 to configure more scanned pages for the specific monitor.
8. Repeat Steps 1 to 7 to configure scanned pages for other monitors.
9. In the upper-left column, click the **Matrix** icon and return to Figure 3-46.
10. Select **Auto Scan**.
11. Click **OK** to start scanning among pages.

3.12.4 Setting Pop-up Alert

You can be alerted by pop-up live videos when motion is detected or I/O devices are triggered.

1. Use the **Display** list to select the monitor to be configured.
2. In the upper-left column, click **Event Popup**. This page appears.

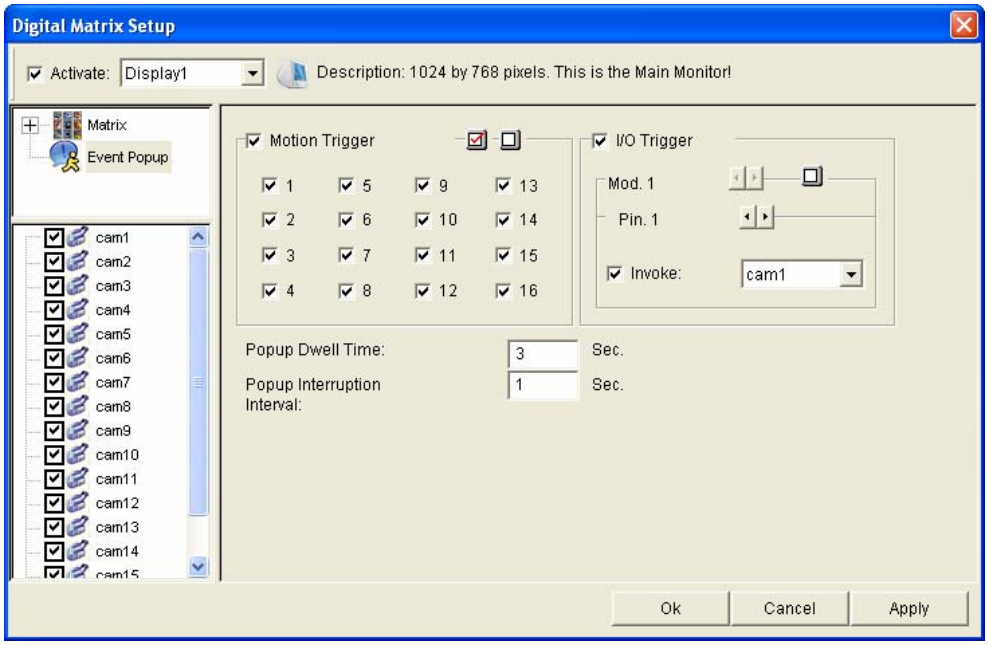


Figure 3-46

- **Motion Trigger:** The live video of selected cameras pops up when motion is detected.
- **I/O Trigger:** The live video of assigned camera pops up when the selected input device is triggered.
- **Popup Dwell Time:** Specify the amount of time that a pop-up live video remains in the foreground.
- **Popup Interruption Interval:** Specify the interval between camera pop-ups. This option is useful when several cameras are activated for pop-up alert at the same time.

3. Use the **Display** list to select other monitors for setup.
4. After above settings, click the **Matrix** icon and return to Figure 3-46.
5. Select **Event Popup Mode**. Then select **Fixed Position of Camera** or **Random Position of Camera**. For these two options, see *3.12.4.1 Setting Pop-up Positions*.
6. Click **OK**.
7. Start monitoring. When motion is detected or the input device is triggered, the live video will pop up for alert.

3.12.4.1 Setting Pop-up Positions

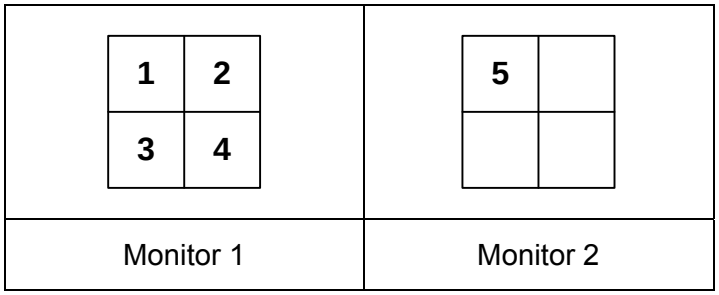
When you select **Random Position of Camera**, you can decide the positions for pop-up cameras.

- **Fixed Position of Camera:** The cameras pop up in their assigned positions. To assign positions, select **Screen Division**. Then drag and drop the cameras number to the desired potions on the divisions.
- **Random Position of Camera:** The positions of pop-up cameras are based on the sequence order of triggers. There are two modes for this position:

1. **Cascade Mode:** This mode can avoid the same cameras popping up on different monitors. This is suggested to be used when multiple monitors are placed close to each other.

   Example:

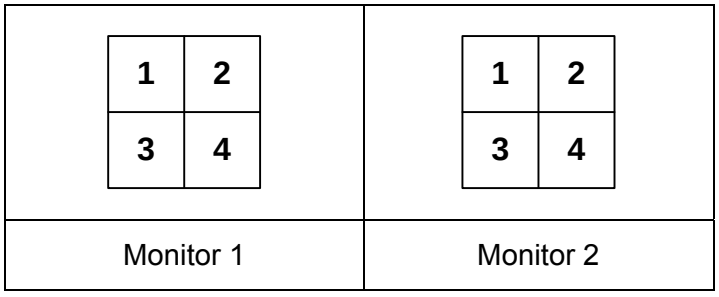
   Camera 1, Camera 2, Camera 3, Camera 4 and Camera 5 are assigned for pop-up alert on both Monitor 1 and Monitor 2. Monitor 1 is set at 4 screen divisions. When the five cameras are triggered at same time, the first 4 cameras show up on Monitor 1 and the 5th on Monitor 2.



2. **Parallel Mode:** This mode allows the same cameras simultaneously pop up on different monitors. This is suggested to be used when multiple monitors are placed in separate rooms.

   Example:

   Camera 1, Camera 2, Camera 3 and Camera 4 are assigned for pop-up alert on both Monitor 1 and Monitor 2. When the four cameras are triggered at the same time, they will show up simultaneously on both Monitor 1 and Monitor 2.



3.12.5 Setting Live View with Pop-up Alert

You can set a different live view mode with pop-up alert together for each monitor. When alert events occur, the live video of the associated camera will pop up on the assigned monitor to replace its live view mode.

1. To configure live view mode, follow the instructions in *3.12.2 Setting Live View*.
2. To configure pop-up alert, in the upper left column, click **Event Popup**. Figure 3-46 appears.
3. Configure **Motion Trigger**, **I/O Trigger**, **Popup Dwell Time** and **Popup Interruption Interval** for each monitor. For details see *3.12.4 Setting Pop-up Alert.*
4. Click the **Matrix** icon and return to Figure 3-46. Ensure the **Live Mode** option is selected.
5. Click **OK**. The live view mode you configured for each monitor is displayed.
6. Start monitoring. When alert events occur, the associated camera will pop up on the desired monitor.

3.13 Extended Installation

Beyond basic installation, the GV-Hot Swap DVR package provides the following accessories to make your unit even more powerful and convenient:

- GV-Keyboard
- GV-IR Remote Control
- RJ-11 to USB Cable for PTZ control

Note: The RJ-11 to USB Cable is not available for GV-NVRH model.

3.13.1 GV-Keyboard

The GV-Keyboard is designed to operate the GV-Hot Swap DVR exclusively. Using the USB cable supplied with the GV-Keyboard, plug one end into the GV-Keyboard and the other end into one of the USB ports on the GV-Hot Swap DVR; you can operate the Keyboard immediately without installing any drivers.

For details on the GV-Keyboard, find the *Installation Manual* included in its own package.

Figure 3-47

Setting up the GV-Keyboard:

1. On the GV-Desktop, click the **Programs** button, and then select **GV-Keyboard** (Figure 3-33). The Keyboard & Joystick dialog box appears (Figure 3-48).
2. In the **Device** field, select the COM port connecting to the GV-Keyboard. The COM port number can be found in the Device Manager.
3. Click ▶ to start the service.

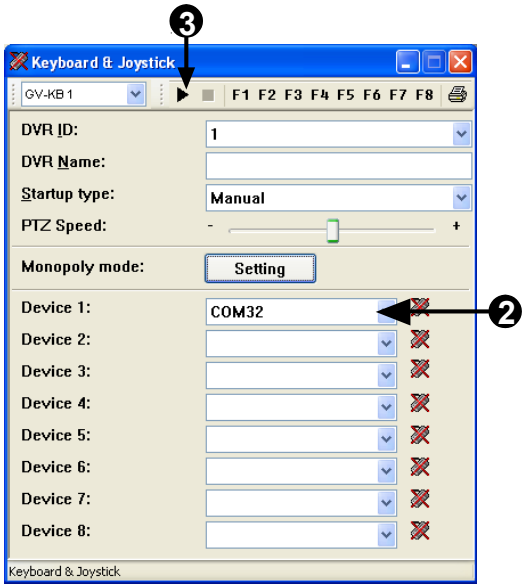
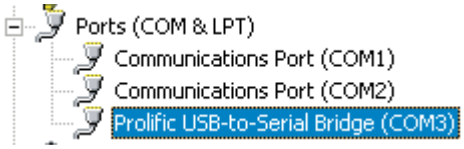


Figure 3-48

Note: To verify the COM port number that the GV-Keyboard is connected to, go to Device Manager. Look in **Ports (COM & LPT)** field on the list to obtain the COM port number in the **Prolific USB-to-Serial Bridge** entry.



3.13.2 GV-IR Remote Control

The GV-IR Remote Control provides easy control of the GV-Hot Swap DVR. Its receiver is differently installed depending on the models. Except that it is built in all 20-bay models, the Receiver should be plugged into any USB ports of the GV-Hot Swap DVR.

For details, see *GV-IR Remote Control User's Manual* included in the package.

Figure 3-49

3.13.3 I/O Devices

The GV-Hot Swap DVR, with built-in GV-NET/IO Card, provides 4 alarm outputs and 4 sensor inputs.

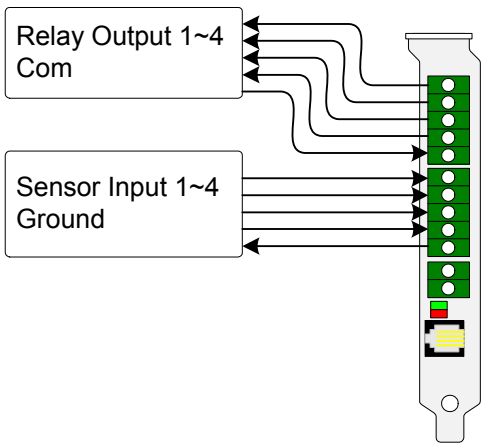


Figure 3-50

3.13.4 PTZ Domes

When connecting PTZ domes, you need to plug the supplied RJ-11 to USB cable into the USB port of the GV-Hot Swap DVR.

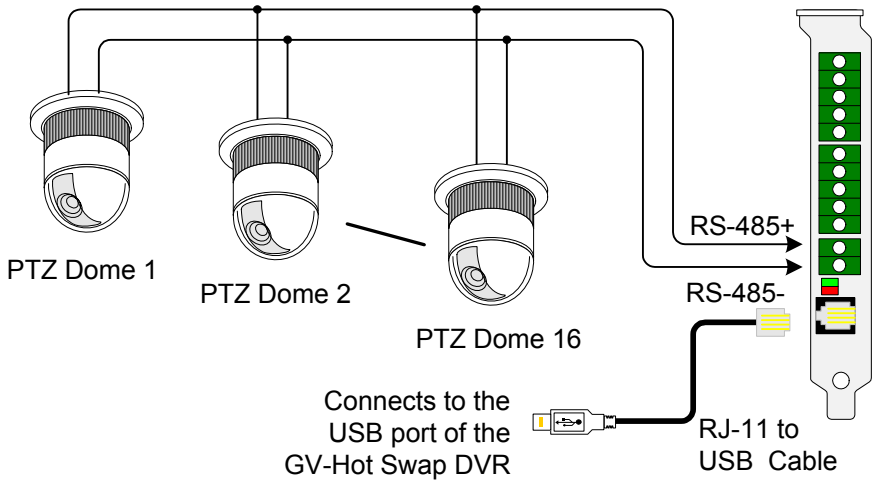


Figure 3-51

Note:

1. For the users of GV-NVRH, they can access the PTZ functions through the connection to the IP devices, such as GV-Video Server or GV-Compact DVR, over the Internet.
2. The RS-485± functions are not available for GV-NVRH model. However, you can still connect a RS-485 device to the GV-NVRH model through a GV-COM Box or a GV-Hub Box. For details, see *1.2 Options.*

3.14 System Restoration

3.14.1 Recovery DVD

If preinstalled files are damaged, use the supplied Recovery DVD to restore them. To restore the operating system and all preinstalled software, follow these steps:

Note: After recovery, you need to re-install all settings and passwords. But the recovery will not delete your recording files saved on the GV-Hot Swap DVR since it only reformats the partition C and all of your files are still stored on other partitions.

---

1. Remove or turn off the power of any connected USB devices.
2. Turn off the power of all drive bays.
3. Insert the Recovery DVD.
4. The message "*Recover your partition now. Are you sure?*" appears. Click **OK**.

Figure 3-52

5. This message box appears when the recovery begins.

Figure 3-53

6. When the recovery is complete, the message "*The recovery process is finished. Please remove DVD and press "OK" to reboot*" will appear. Manually remove the DVD and then click **OK**.

Figure 3-54

3.14.2 Configuring the GV-Hot Swap DVR for PAL after Recovery

The default video standard of the Recovery DVD is set to NTSC. If the video standard in your country is PAL, remember to configure the GV-Hot Swap DVR for PAL after using the Recovery DVD.

1. Click the **Configure** button, point to **A/V Setting**, and then select **Video Source**.

Figure 3-55

2. In the Video Standard field, select **PAL** from the drop-down list, and click **OK**.

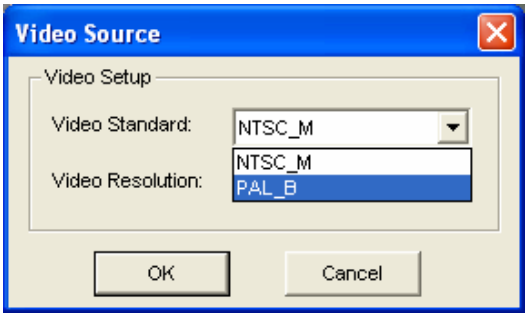


Figure 3-56

3.15 Updating GV-Hot Swap DVR

GeoVision will periodically release the updated Recovery DVD including the latest GV-System Software (Multicam Surveillance System) and Windows updates. If you like to update your GV-Hot Swap DVR, contact your dealer to get one.

Before contacting your dealer, you may check software update news at our website: http://www.geovision.com.tw

Chapter 4 DVR Health Analysis

GeoVision offers health analysis to GV-Hot Swap DVR. The service is intended to give diagnosis for early and immediate detection of problems.

It is recommended to have the health analysis during the first week after you install the GV-Hot Swap DVR, and then have the checkup every three months. It will take 5 working days for response.

Please prepare the following data for analysis, and send to dvrsystem@geovision.com.tw

- **System Settings**
- **System Log**
- **Information of your computer system (Processor; Drives; Voltage, Temperature and Fans)**

4.1 System Settings

Please back up your system configurations using the **Fast Backup and Restore** application.

1. Run **Fast Backup & Restore Main System** from the Start menu.

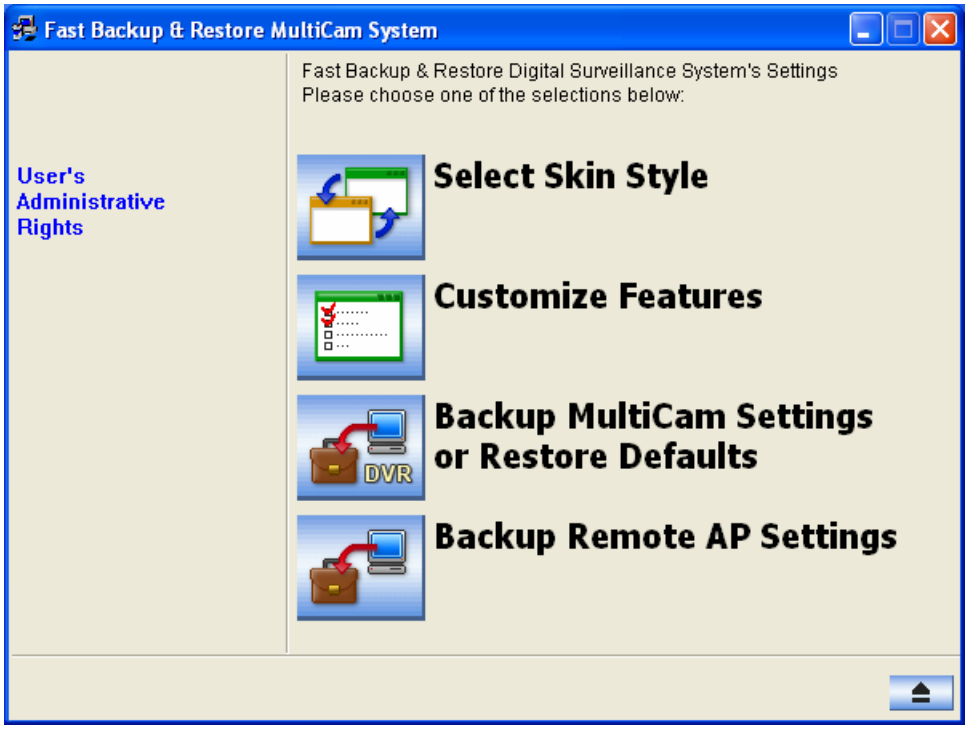

Fast Backup & Restore MultiCam System
Fast Backup & Restore Digital Surveillance System's Settings
Please choose one of the selections below:
User's Administrative Rights
Select Skin Style
Customize Features
DVR
Backup MultiCam Settings or Restore Defaults
Backup Remote AP Settings

Figure 4-1

2. Select **Backup MultiCam Settings or Restore Defaults**, and select **Backup Current System**. This dialog box appears.

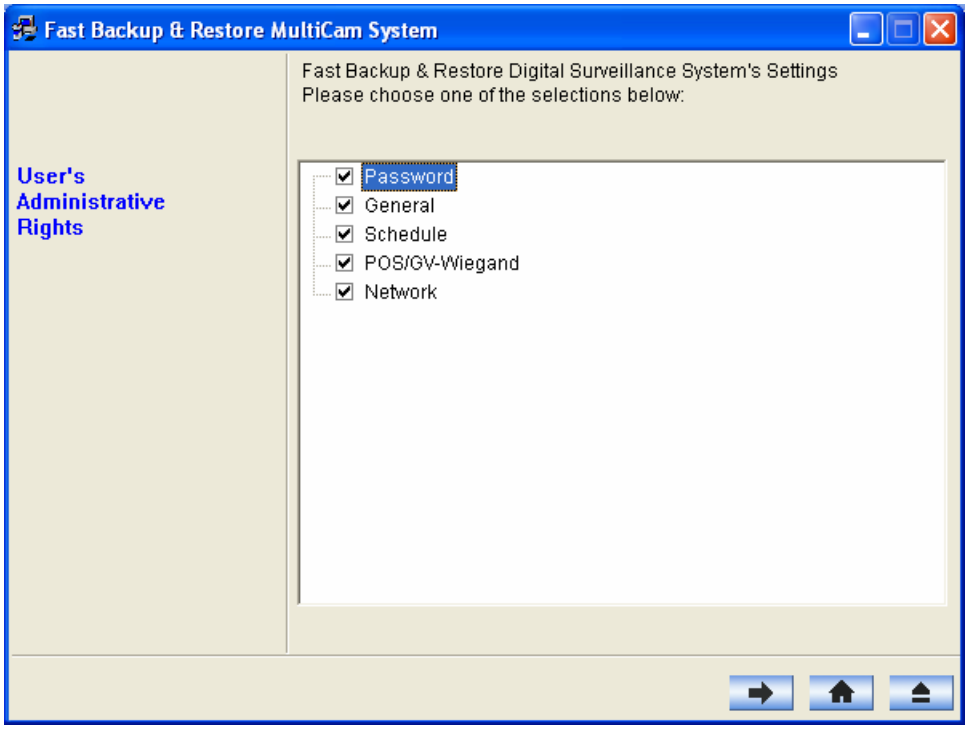


Figure 4-2

3. Press the **Next Step** button to back up all your system settings. The Save As dialog box appears.
4. Select the destination drive to store the backup file. When the backup is complete, this message "*Successfully Backup MultiCam System Settings*" will appear.

4.2 System Log

Please provide the **sys*.mdb** files of system log. The files by default are saved at **D:\Log\database**. If you have modified the default location, you can check the path by the following steps:

1. Click the **Configure** button on the Main System, point to **General Setting**, and then select **System Log Setting**. This dialog box appears.

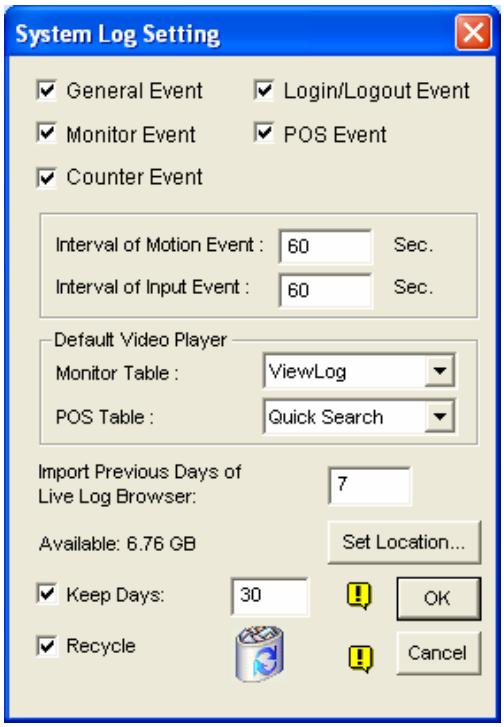


Figure 4-3

2. Click **Set Location**. You should see the location of your system log.

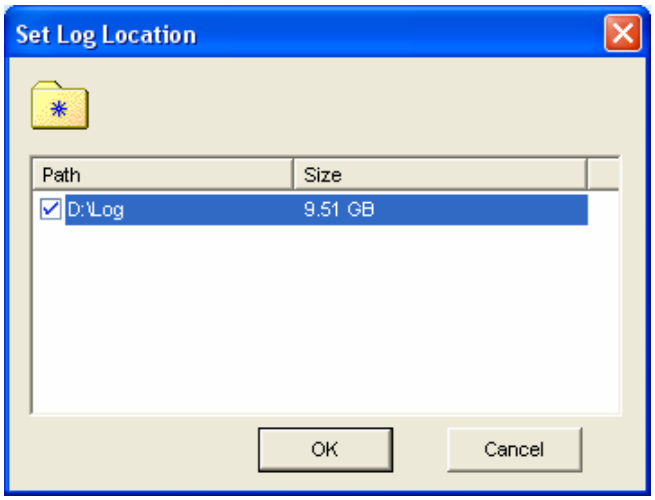


Figure 4-4

4.3 Information of Your Computer System

To get the information of your computer system, please follow the steps below to install the free software PC WIZARD. By using the software, the following computer information can be easily collected and saved for analysis:

- **Processor:** includes Type, Frequency, Data Cache L1, Trace Cache L1, Cache L2, Voltage, Processor Temperature, FPU Coprocessor.
- **Drives:** includes Number of Hard Disk, Number of Drive, Total Size and Free Space of Drive.
- **Voltage, Temperature and Fans:** includes Monitoring Chip, Voltage CPU, Chassis Fan, Processor Temperature, Mainboard Temperature, Hard Disk Temperature.

1. Download and install **PC WIZARD** from http://www.cpuid.com/pcwizard.php .
2. After installation, run the program.
3. Right-click the **Processor** icon and click **Save as**.

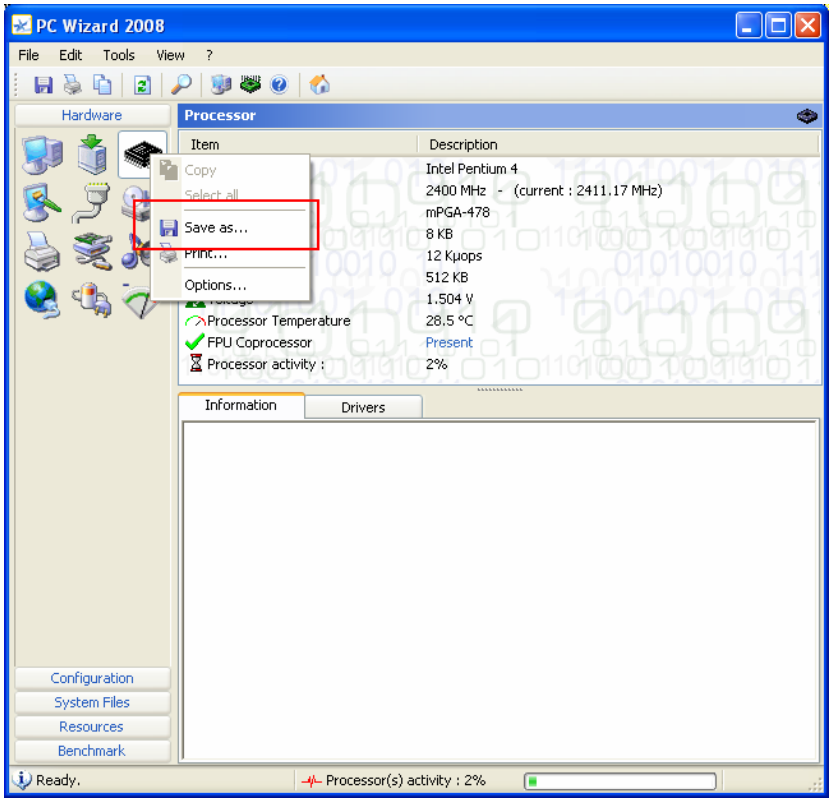


Figure 4-5

4. In the Save As dialog box, select **Format HTML** and click **OK**.

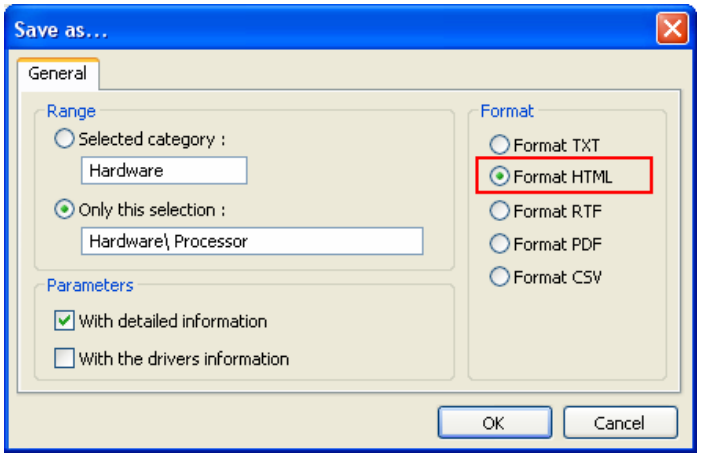


Figure 4-6

5. Select the Save location, type the file name, and then click **Save** to save the Processor information as HTML file.
6. Repeat Steps 3-5 to save the **Drives** information as HTML file.
7. To save the **Voltage, Temperature and Fans** information , please follow these steps:
   A. Click the **Voltage, Temperature and Fans** icon. The related data is displayed at the right window.
   B. Click the first item **Monitoring Chip**.
   C. Click **Edit** on the menu bar and click **Select All** to highlight all the contents.
   D. Click **Edit** on the menu bar and select **Copy**.
   E. Open a Notepad. Paste and save the information to TXT file.

4.4 Health Analysis Form

Please send the related data for analysis along with this Health Analysis Form to dvrsystem@geovision.com.tw.

Health Analysis of GV-Hot Swap DVR	
Contact Person:	**Title:**
Company Name:	
Telephone: (O)	**(H)**
Fax:	
E-Mail:	
Model:	
Bar Code:	

4.5 Check List

Read this check list before submitting the health analysis request:

- System Settings- **EXE file**
- System Log- **sys*.mdb**
- Computer System- Processor information of **HTML file**
- Computer System- Drives information of **HTML file**
- Computer System- Voltage, Temperature and Fans information of **TXT file**
- Health Analysis Form

Chapter 5 Troubleshooting

GV-Hot Swap DVR is designed for durability. However, should problems occur, following the procedures here can help determine the cause.

A portable 2.5" HDD connected to the GV-Hot Swap DVR front panel cannot be detected.

When the portable 2.5” HDD connected to a GV-Hot Swap DVR cannot be detected, try this step:

Use a dual head USB cable and insert both heads to the USB ports on the GV-Hot Swap DVR front panel as illustrated below.

20-Bay Models

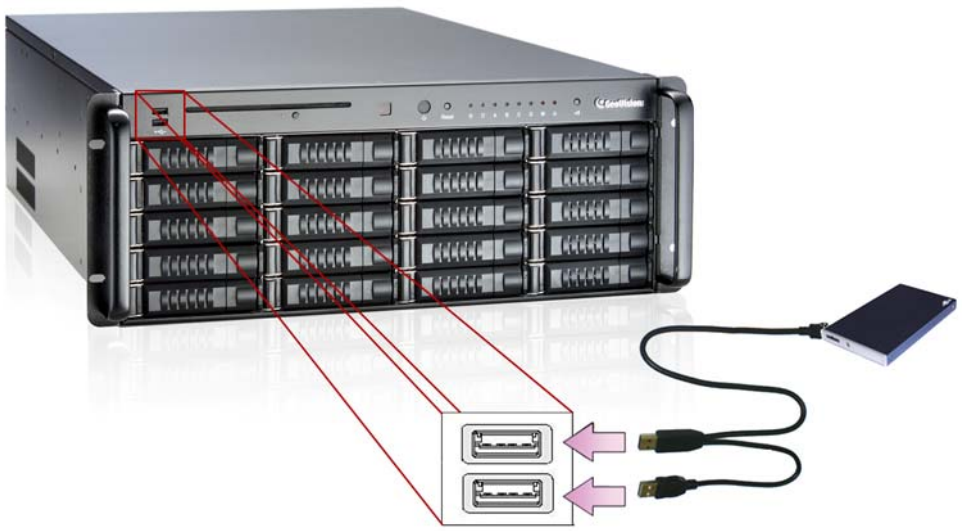


Figure 5-1

GV-Hot Swap DVR won't turn on.

If your GV-Hot Swap DVR won't turn on or you don't hear a startup sound or any fan or drive noise, try these steps:

1. Make sure that you switch on the AC power on the rear panel.

20-Bay Models

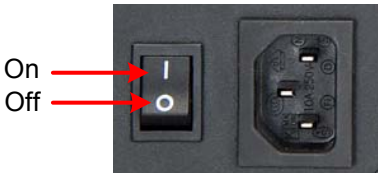


Figure 5-2

8 / 4-Bay Models

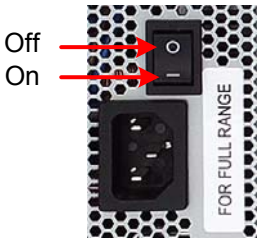


Figure 5-3

2. Make sure that the power cord is properly connected to both GV-Hot Swap DVR and power outlet. If you are using a power strip, make sure that the strip is powered on.
3. If the problem persists, consult your dealer.

GV-Hot Swap DVR stops responding (aka "crashed" or froze").

If your GV-Hot Swap DVR is not responding to your clicking, typing, or mouse movements, try these steps to get your GV-Hot Swap DVR back on track. Please note that you will lose any unsaved changes in all open applications.

1. Restart your GV-Hot Swap DVR by pressing the **Reset** button on the front panel.
2. If your GV-Hot Swap DVR is still unresponsive, switch off the **Power** button to shut it down. Wait 30 seconds and then restart your GV-Hot Swap DVR.

20-Bay Models

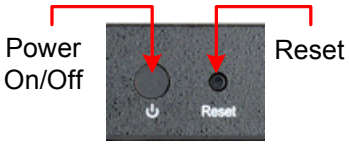


Figure 5-4

8 / 4-Bay Models

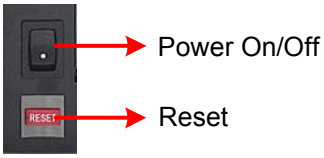


Figure 5-5

GV-Hot Swap DVR 's hard disk corrupts.

If you are experiencing file system corruption problems, such as lost clusters, cross-linked files or invalid files or directories, try these steps:

3. Use the **HD Tune** utility to scan the hard disk for errors. Follow these steps:
   A. Download and install **HD Tune** from http://www.hdtune.com/
   B. Click the **Error Scan** tab and click **Start** to scan. Any found defects will be shown as red blocks (see Figure 5-6).

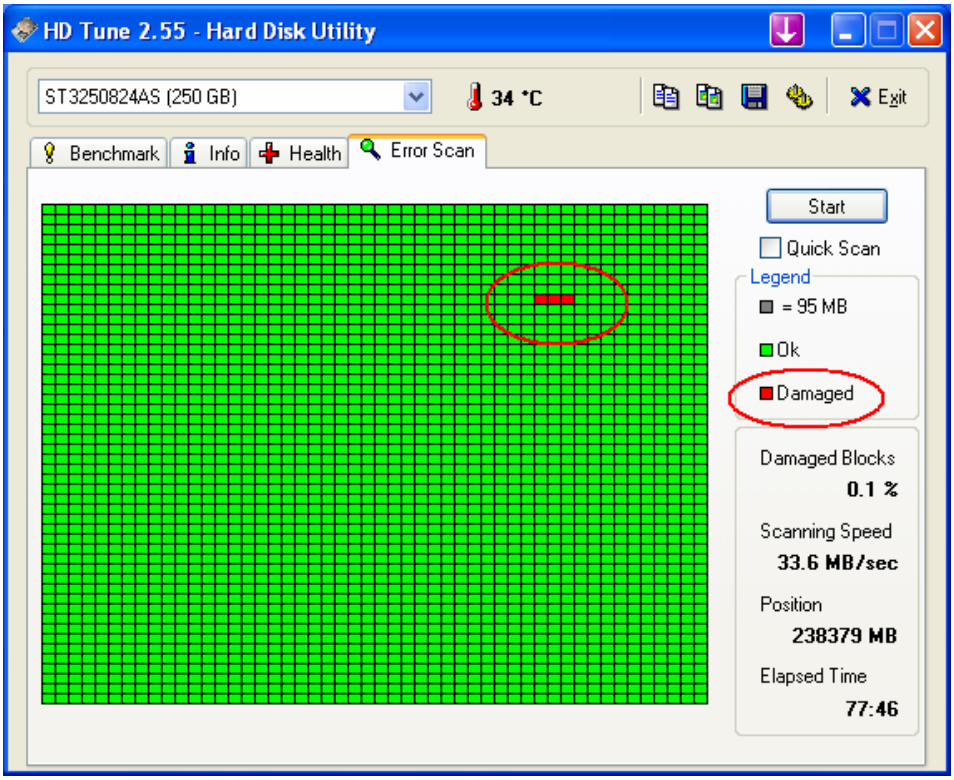


Figure 5-6

   C. If your hard disk drive is damaged, replace a new one.

4. If the HD Tune utility does not find any defects, use the Windows built-in utility to attempt to fix the errors. Follow these steps:
   A. On the GV-Desktop, click the **Programs** button, and select **Disk Management**. See Figure 3-33.

B. Right-click the desired hard disk and select **Properties** from the file menu to display the Properties window.

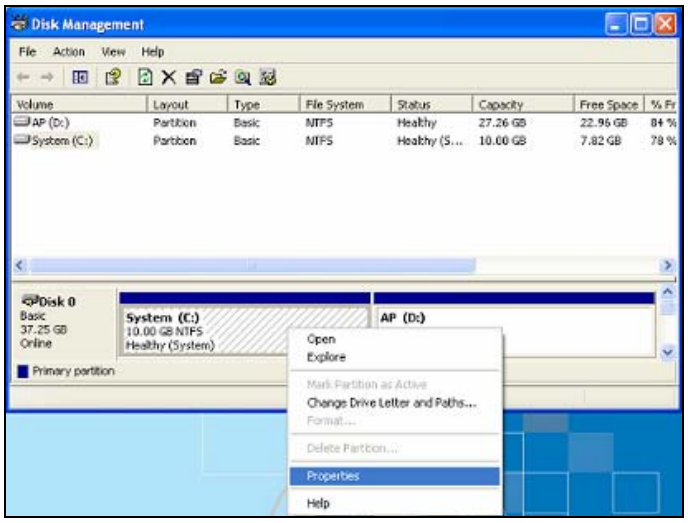


Figure 5-7

C. Click the **Tools** tab in the upper portion of the window.

D. Under Error-checking, click the **Check Now** button.

Figure 5-8

E. Select **Automatically fix file system errors** and **Scan for and attempt recovery of bad sectors**.

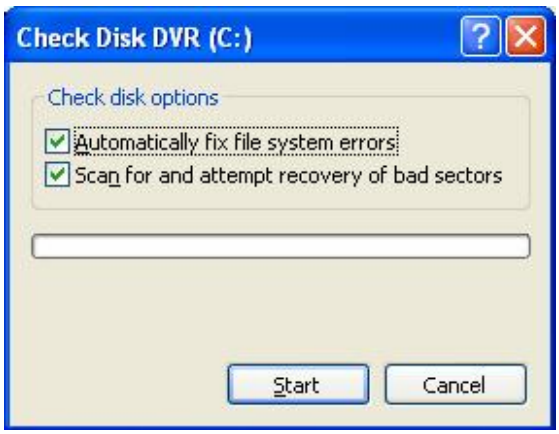


Figure 5-9

F. Click **Start**.

5. If the Windows hard disk utility still cannot fix the problem in Partition C, try rebuilding the operating system and GV-System Software by using the Recovery DVD. Refer to *3.14.1 Recovery DVD*.
6. If the problem persists, replace a hard disk drive.

GV-Hot Swap DVR suffers virus attack.

GV-Hot Swap DVR is designed and optimized for Windows XP platform. It may be vulnerable to newly created worms and exploits that attack any of the underlying operating system's previously undocumented flaws. If your GV-Hot Swap DVR suffers virus attack, try rebuilding the operating system and GV-System Software by using the Recovery DVD. Refer to *3.14.1 Recovery DVD*.

GV-Hot Swap DVR has video and/or audio lost.

If your GV-Hot Swap DVR fails to show video, audio or both, try these steps:

1. Check the video/audio connection. Make sure one end of the D-type video/audio cable is securely connected to the video/audio device, and the other end to the video/audio port of the GV-Hot Swap DVR.
2. Make sure the video/audio device is turned on.
3. Switch the cable from the functional channel to the non-functional channel, and vice versa. If the previously non-functional channel is now able to deliver video/audio, you should check the video/audio device itself and its related cables.

The screen image appears distorted or jitters.

If the screen image seems to be distorted, jitter, or not to look right, try these steps:

1. Make sure the video standard in your country matches the setting in the GV-Hot Swap DVR. Refer to *3.14.2 Configuring the GV-Hot Swap DVR for PAL after Recovery*.
2. Make sure the camera and its cable are not damaged or frayed. Try to replace a camera or camera cable to see if this fixes the problem.

How can I find more help?

1. Visit our website at http://www.geovision.com.tw/english/4_1.asp
2. Write us at dvrsystem@geovision.com.tw

Specifications

Video (GV-4016H / GV-4008H /GV-2016H / GV-2008H)

Model		GV-4016H	GV-4008H	GV-2016H	GV-2008H
Video Standard		NTSC, PAL			
Video Input		16 channels	8 channels	16 channels	8 channels
Input Level		1.0 Vp-p (± 10%) composite, 75 Ω			
TV Output		1.0 Vp-p composite			
Compression	H/W	H.264		MPEG-4 (ASP)	
	S/W	Geo MPEG4 / Geo MPEG4 (ASP) / Geo H264 / Geo H264 V2			
Display Frame (Max)	NTSC	480 FPS	240 FPS	480 FPS	240 FPS
	PAL	400 FPS	200 FPS	400 FPS	200 FPS
Display Resolution	NTSC	720 x 480		720 x 480 / 720 x 480 De-interlace	
	PAL	720 x 576		720 x 576 / 720 x 576 De-interlace	
Camera Name		Max. 32 characters			
Screen Split Control		1x1 / 2x2 / 1+5 / 1+7 / 3x3 / 2+8 / 1+12 / 1+16 / 4x4			
Screen Rotate Control		1 ~ 10 sec.			
Image Control		Contrast / Brightness / Saturation / Hue			

Video (GV-1480H / GV-1240H / GV-1120H / GV-1016H / GV-1008H)

Model		GV-1480H	GV-1240H	GV-1120H	GV-1016H	GV-1008H
Video Standard		NTSC, PAL				
Video Input		16 / 32 channels	8 / 16 / 32 channels	16 / 32 channels	16 channels	8 channels
Input Level		1.0 Vp-p (± 10%) composite, 75 Ω				
TV Output		1.0 Vp-p composite				
Compression		Geo MPEG4 / Geo MPEG4 (ASP) /Geo H264 / Geo H264 V2				
Display Frame (Max)	NTSC	960 FPS			480 FPS	240 FPS
	PAL	800 FPS			400 FPS	200 FPS
Display Resolution	NTSC	320 x 240 / 360 x 240 640 x 480 / 640 x 480 De-interlace / 720 x 480 / 720 x 480 De-interlace				
	PAL	320 x 240 / 360 x 288 640 x 480 / 640 x 480 De-interlace / 720 x 576 / 720 x 576 De-interlace				
Camera Name		Max. 32 characters				
Screen Split Control		1x1 / 2x2 / 1+5 / 1+7 / 3x3 / 2+8 / 1+12 / 1+16 / 4x4 / 5x5 / 6x6				
Screen Rotate Control		1 ~ 10 sec.				
Image Control		Contrast / Brightness / Saturation / Hue				

Audio (GV-4016H / GV-4008H / GV- 2016H / GV-2008H)

Model	GV-4016H	GV-4008H	GV-2016H	GV-2008H
Audio Input	16 channels	8 channels	16 channels	8 channels
Input Level	0.5 ~ 1 Vp-p composite			
Compression	ADPCM / G.723			

Audio (GV-1480H / GV-1240H / GV-1120H / GV-1016H / GV-1008H)

Model	GV-1480H	GV-1240H	GV-1120H	GV-1016H	GV-1008H
Audio Input	16 / 32 channels	8 / 16 / 32 channels	16 / 32 channels	8 channels	16 channels
Input Level	0.5 ~ 1 Vp-p composite				
Compression	ADPCM / G.723				

Recording (GV-4016H / GV-4008H / GV-2016H / GV-2008H)

Model		GV-4016H		GV-4008H	GV-2016H	GV-2008H
Recording Frame	NTSC	H/W: 480 (D1)		H/W: 240 (D1)	H/W: 480 (D1)	H/W: 240 (D1)
	PAL	H/W: 480 (D1)		H/W: 200 (D1)	H/W: 400 (D1)	H/W: 200 (D1)
Image Compression Dimensions	NTSC	HW	720 x 480		720 x 480, 720 x 480 De-interlace	
		SW	360 x 240		360 x 240, 720 x 480 De-interlace	
	PAL	HW	720 x 576		720 x 576, 720 x 576 De-interlace	
		SW	360 x 288		360 x 288, 720 x 576 De-interlace	
Recording Mode	Round the Clock / Motion Detection / Sensor Detection / Pre & Post Recording / Schedule Recording					
Schedule	96 groups per day by 15 min.					
Instant Playback	10 sec. / 30 sec. / 1 min. / 5 min.					
Pre Recording	1~ 90 sec. (1 FPS)					
Water Marking	Support					

Recording (GV-1480H / GV-1240H / GV-1120H /GV-1016H /GV-1008H)

Model		GV-1480H	GV-1240H	GV-1120H	GV-1016H	GV-1008H
Recording Frame	NTSC	S/W: 960 (CIF)	S/W: 480 (CIF)	S/W: 240 (CIF)	S/W: 480 (D1)	S/W: 240 (D1)
	PAL	S/W: 800 (CIF)	S/W: 400 (CIF)	S/W: 200 (CIF)	S/W: 400 (D1)	S/W: 200 (D1)
Image Compression Dimensions	NTSC	320 x 240 / 360 x 240 640 x 480 / 640 x 480 De-interlace / 720 x 480 / 720 x 480 De-interlace				
	PAL	320 x 240 / 360 x 288 640 x 480 / 640 x 480 De-interlace / 720 x 576 / 720 x 576 De-interlace				
Recording Mode		Round the Clock / Motion Detection / Sensor Detection / Pre & Post Recording / Schedule Recording				
Schedule		96 groups per day by 15 min.				
Instant Playback		10 sec. / 30 sec. / 1 min. / 5 min.				
Pre Recording		1~ 90 sec. (1 FPS)				
Water Marking		Support				

Maximum Number of Video Frames Assigned to a Single Hard Disk

To have a smooth video recording, please note the limit on the number of frame rates that you can assign to a single hard disk. The frame rate limit is based on the resolution of video sources. The higher video resolution you want to record, the lower frame rates you can assign to a single hard disk. Consult the documentation of the GV-Hot Swap DVR and the IP camera you wish to connect for the information of recording frame rates.

Video Resolution	Max. number of Frames Rates (FPS)
CIF (320 x 240)	480
D1 (720 x 480)	240
1 Megapixel (1280 x 960)	270
2 Megapixels (1600 x 1200)	120
3 Megapixels (2048 x 1536)	110
4 Megapixels (2560 x 1600)	70
5 Megapixels (2592 x 1944)	54

Video and Audio (GV-NVRH)

Model	GV-NVRH (GV)	GV-NVRH	GV-NVRH (Combo)
Video Input	4, 8, 12, 16, 20, 24, 28, 32 channels	1, 2, 4, 6, 8, 10, 12, 16, 18, 20, 22, 24, 26, 28, 30, 32 channels	Includes the combined options of NVR (GV) Dongle and NVR Dongle with the limit of 32 channels in total.
Audio Input	4, 8, 12, 16, 20, 24, 28, 32 channels	1, 2, 4, 6, 8, 10, 12, 16, 18, 20, 22, 24, 26, 28, 30, 32 channels	Includes the combined options of NVR (GV) Dongle and NVR Dongle with the limit of 32 channels in total.

Searching and Playback

Search Method	Date / Time
Date / Time / Event Search	Selectable on the tree list and calendar
Log Search	Through the log data to find the video event / time
Backup Type	DVD+R (DL) / DVD-R (DL) / DVD+R / DVD+RW / DVD-R / DVD-RW / CD-R / CD-RW

Remote Client Software

Monitoring Environment	WebCam / Twin Server / CenterV2 / VSM / Control Center / Remote Playback Server / Remote View / IP Multicast / GView V2 for PDA / MSView V2 for Windows Mobile 5.0 / MSView V3 for Windows Mobile 6.0 / SSView V3 for Nokia S60 2nd and 3rd / BB View for BlackBerry Mobile / 3G Mobile Phone
WebCam Live View	Max. 32 channels transmission (Max. 200 channels accessible)
Remote Search	WebCam's Remote Playback / Remote Playback Server

System Monitoring and Recovery

Power Restoration	Power restored after AC power loss
Monitoring	Two independent Watchdogs (Hardware Watchdog + Software Watchdog)
Recovery DVD	Automatic system rebuild

Alarm

Sensor Input	Standard	4 inputs
	GV-IO 12-In Card (Optional)	12 inputs
	GV-IO USB Box (Optional)	8 ~ 72 inputs (with GV-System version 8.1.2.0 or earlier)
		16 ~ 144 inputs (with GV-System version 8.2.0.0 or later)
	GV-IO Box 16 Ports (Optional)	16 inputs
	GV-IO Box 8 Ports (Optional)	8 inputs
	GV-IO Box 4 Ports (Optional)	4 inputs
Alarm Output	Standard	4 outputs
	GV-IO 12-Out Card (Optional)	12 outputs
	GV-IO USB Box (Optional)	16 ~ 144 outputs (with GV-System of version V8.1.2.0 later)
	GV-IO Box 16 Ports (Optional)	16 inputs
	GV-IO Box 8 Ports (Optional)	8 inputs
	GV-IO Box 4 Ports (Optional)	4 inputs
Motion Detection	32 channels	

Connector (GV-4016H / GV-4008H)

Video Input	BNC 8 / 16 ports
Audio Input	RCA 8 / 16 ports
Audio Microphone In	Mini stereo jack
Audio Output	Mini stereo jack
RS±485 for PTZ Control	2-pin terminal

Connector (GV-2016H / GV-2008H / GV-1480H / GV-1240H / GV-1120H / GV-1016H / GV-1008H)

Video Input	BNC 8 / 16 / 32 ports
Audio Input	RCA 8 / 16 / 32 ports
Audio Microphone In	Mini stereo jack
Audio Output	Mini stereo jack
TV Output	RCA
RS±485 for PTZ Control	2-pin terminal

Networking (GV-NVRH)

Model	GV-NVRH (GV)	GV-NVRH	GV-NVRH (Combo)
Type	TCP/ IP, LAN, WAN, Internet, ISDN		

Environment

Operating Temp.	0 ~ 45 °C / 32 ~ 113 °F
Humidity	0 ~ 80% RH (non-condensing)

Language

Type	English / Czech / Danish / French / German / Hebrew / Hungarian / Italian / Japanese / Polish / Portuguese (Brazil) / Russian / Serbian / Spanish / Simplified Chinese / Traditional Chinese / Swedish

Supported IP Devices

For the models of the supported IP devices, refer to the corresponding version of the *Surveillance System User's Manual*.

Warranty Policy

Warranty Coverage

GeoVision, Inc. warrants **GV-Hot Swap DVR System**, **GV-IR Remote Control**, and **GV-Keyboard** against defects in materials and workmanship for a period of TWO (2) years from the date of purchase.

Other packaged accessories and software (including but not limited to System Software) are excluded.

If a defect where due to causes attributable to GeoVision arises and a valid claim is received by GeoVision within the Limited Warranty Period, at its option, GeoVision will (1) repair the product at no charge, using new or refurbished replacement parts, or (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product.

GeoVision warrants replacement parts or repairs for thirty (30) days from the date of GeoVision shipment or for the remainder of the Limited Warranty Period, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes GeoVision's property.

Exclusions and Limitations

The Customer shall have no coverage or benefits under this Limited Warranty if any of the following conditions are applicable:

1. The product has been subjected to abnormal use, failure to follow the instructions prescribed in User's Manuals, improper storage, improper packaging, improper maintenance, unauthorized modifications, unauthorized repair, misuse, neglect, abuse, accident, alternation, improper hardware/software installations, or other acts due to causes not attributable to GeoVision, including damage caused by shipping.
2. The product was not purchased from an authorized distributor or agent.
3. The product has been damaged from exposure to rain, flood, storm, moisture, dampness, weather conditions, an Act of God, force majeure, improper use of any electrical source, or the connection to other products not recommended for interconnection by GeoVision.
4. Defects or damage caused due to virus attack.
5. The product bar code on the system case has been removed, defaced or altered.
6. The system case has been opened.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. THE WARRANTY IS LIMITED TO REPAIR OR EXCHANGE THE PRODUCT AT GEOVISION'S OPTION. OTHER EXPRESSED OR IMPLIED WARRANTIES FOR THIS PRODUCT, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES EXPRESSED OR IMPLIED WILL APPLY AFTER THIS PERIOD. GEOVISION SHALL NOT BE LIABLE FOR SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL DAMAGES. GEOVISION SHALL NOT BE LIABLE FOR LOST PROFITS, LOST OF DATA, PROGRAMS OR OTHER INFORMATION, DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS OF THIS PRODUCT, OR DAMAGES BASED UPON INCONVENIENCE, LOSS OF PRODUCT USE, LOSS OF TIME, COMMERCIAL USE, INCIDENTAL AND/OR CONSEQUENTIAL DAMAGES FOR THE BREACH OF ANY EXPRESSED OR IMPLIED WARRANTY, INCLUDING DAMAGES TO PROPERTY, AND TO THE EXTENT PERMITTED BY LAW, DAMAGES FOR PERSONAL INJURY, OR OTHERWISE, EVEN IF GEOVISION HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES.

Warranty Requirements

To validate your purchase, you shall complete the online Product Registration **within 30 days from the date of purchase** at http://www.geovision.com.tw/english/4_6.asp. Or click **GeoVision Online Registration** in My Favorite for a direct link.

If you fail to complete the Product Registration, the warranty period will start **from the date of shipment.**

Before you return the product

Some problems you experience may be related to software or the operating system. It is important to investigate other sources of assistance first. Before returning the product, try the following:

1. Review troubleshooting sections in the documentation for software and peripheral devices.
2. Try rebuilding the operating system and GV-System by using the Recovery DVD.
3. Consult your dealer. They are your best sources for current information and support. Or you can call or email GeoVision offshore offices for assistance.

   When you call or e-mail, please inform us the following:

- Model name
- Bar Code
- Recovery DVD version
- Details of the defect or problem
- Attempted solutions
- Your contact information
- Reseller's contact information

4. If you find it is the software problem, please check our website or your dealer for software updates.

Obtaining Warranty Service

If you are still unable to solve the problem and suspect that it is hardware related, follow these:

1. Send an e-mail to GeoVision to start Return Merchandise Authorization (RMA) process.
   E-Mail: sales@geovision.com.tw or dvrsystem@geovision.com.tw
2. Securely pack the product in its original carton using the original packing material, or in equivalent packaging.
3. The product shall be returned to **GeoVision, Taiwan** at your expense for shipping and insurance costs.

BEFORE YOU DELIVER YOUR GV-HOT SWAP DVR SYSTEM FOR WARRANTY SERVICE, IT IS YOUR RESPONSIBILITY TO BACK UP YOUR DATA. YOU WILL BE RESPONSIBLE FOR REINSTALLING ALL DATA, SETTINGS AND PASSWORDS. DATA RECOVERY IS NOT INCLUDED IN THE WARRANTY SERVICE AND GEOVISION IS NOT RESPONSIBLE FOR DATA THAT MAY BE LOST OR DAMAGED DURING TRANSIT OR A REPAIR.

Microsoft Software License Terms for:

Windows® XP Embedded Runtime

These license terms are an agreement between you and *[OEM]*. Please read them. They apply to the software included on this device. The software also includes any separate media on which you received the software.
The software on this device includes software licensed from Microsoft Corporation or its affiliate.
The terms also apply to any Microsoft

- Updates,
- Supplements,
- Internet-based services, and
- Support services

for this software, unless other terms accompany those items. If so, those terms apply. If you obtain updates or supplements directly from Microsoft, then Microsoft, and not *[OEM]*, licenses those to you.
As described below, using some features also operates as your consent to the transmission of certain standard computer information for Internet-based services. By using the software, you accept these terms. If you do not accept them, do not use or copy the software. Instead, contact [OEM] to determine its return policy for a refund or credit.

If you comply with these license terms, you have the rights below.

1. **Use Rights.**

   You may use the software on the device with which you acquired the software.

2. **Additional Licensing Requirements and/or Use Rights.**

   a. **Specific Use.** [OEM] designed this device for a specific use. You may only use the software for that use.

   b. **Other Software.** You may use other programs with the software as long as the other programs

      - Directly support the manufacturer's specific use for the device, or
      - Provide system utilities, resource management, or anti-virus or similar protection.

      Software that provides consumer or business tasks or processes may not be run on the device. This includes email, word processing, spreadsheet, database, scheduling and personal finance software. The device may use terminal services protocols to access such software running on a server.

c. Device Connections.

- You may use terminal services protocols to connect the device to another device running business task or processes software such as email, word processing, scheduling or spreadsheets.
- You may allow up to ten other devices to access the software to use
  - File Services,
  - Print Services,
  - Internet Information Services, and
  - Internet Connection Sharing and Telephony Services.

The ten connection limit applies to devices that access the software indirectly through "multiplexing" or other software or hardware that pools connections. You may use unlimited inbound connections at any time via TCP/IP.

3. **Scope of License.** The software is licensed, not sold. This agreement only gives you some rights to use the software. [OEM] and Microsoft reserve all other rights. Unless applicable law gives you more rights despite this limitation, you may use the software only as expressly permitted in this agreement. In doing so, you must comply with any technical limitations in the software that allow you to use it only in certain ways. For more information, see the software documentation or contact [OEM]. Except and only to the extent permitted by applicable law despite these limitations, you may not:

   - Work around any technical limitations in the software;
   - Reverse engineer, decompile or disassemble the software;
   - Make more copies of the software than specified in this agreement;
   - Publish the software for others to copy;
   - Rent, lease or lend the software; or
   - Use the software for commercial software hosting services.

   Except as expressly provided in this agreement, rights to access the software on this device do not give you any right to implement Microsoft patents or other Microsoft intellectual property in software or devices that access this device.
   You may use remote access technologies in the software such as Remote Desktop to access the software remotely from another device. You are responsible for obtaining any licenses required for use of these protocols to access other software.

   - Remote Boot Feature. If the [OEM] enabled the device Remote Boot feature of the software, you may
     (i) use the Remote Boot Installation Service (RBIS) tool only to install one copy of the software on your server and to deploy the software on licensed devices as part of the Remote Boot process; and
     (ii) use the Remote Boot Installation Service only for deployment of the software to devices as part of the Remote Boot process; and

(iii) download the software to licensed devices and use it on them.

For more information, please refer to the device documentation or contact *[OEM]*.

- Internet-Based Services. Microsoft provides Internet-based services with the software. Microsoft may change or cancel them at any time.

a. Consent for Internet-Based Services. The software features described below connect to Microsoft or service provider computer systems over the Internet. In some cases, you will not receive a separate notice when they connect. You may switch off these features or not use them. For more information about these features, visit http://www.microsoft.com/windowsxp/downloads/updates/sp2/docs/privacy.mspx.

By using these features, you consent to the transmission of this information. Microsoft does not use the information to identify or contact you.

b. Computer Information. The following features use Internet protocols, which send to the appropriate systems computer information, such as your Internet protocol address, the type of operating system, browser and name and version of the software you are using, and the language code of the device where you installed the software. Microsoft uses this information to make the Internet-based services available to you.

- Web Content Features. Features in the software can retrieve related content from Microsoft and provide it to you. To provide the content, these features send to Microsoft the type of operating system, name and version of the software you are using, type of browser and language code of the device where the software was installed. Examples of these features are clip art, templates, online training, online assistance and Appshelp. These features only operate when you activate them. You may choose to switch them off or not use them.
- **Digital Certificates.** The software uses digital certificates. These digital certificates confirm the identity of Internet users sending X.509 standard encrypted information. The software retrieves certificates and updates certificate revocation lists. These security features operate only when you use the Internet.
- **Auto Root Update.** The Auto Root Update feature updates the list of trusted certificate authorities. You can switch off the Auto Root Update feature.
- Windows Media Player. When you use Windows Media Player, it checks with Microsoft for
  - Compatible online music services in your region;
  - New versions of the player; and
  - Codecs if your device does not have the correct ones for playing content. You can switch off this feature. For more information, go to:

http://microsoft.com/windows/windowsmedia/mp10/privacy.aspx.

- **Windows Media Digital Rights Management**. Content owners use Windows Media digital rights management technology (WMDRM) to protect their intellectual property, including copyrights. This software and third party software use WMDRM to play and copy WMDRM-protected content. If the software fails to protect the content, content owners may ask Microsoft to revoke the software's ability to use WMDRM to play or copy protected content. Revocation does not affect other content. When you download licenses for protected content, you agree that Microsoft may include a revocation list with the licenses. Content owners may require you to upgrade WMDRM to access their content. Microsoft software that includes WMDRM will ask for your consent prior to the upgrade. If you decline an upgrade, you will not be able to access content that requires the upgrade. You may switch off WMDRM features that access the Internet. When these features are off, you can still play content for which you have a valid license.

c. **Misuse of Internet-based Services.** You may not use these services in any way that could harm them or impair anyone else's use of them. You may not use the services to try to gain unauthorized access to any service, data, account or network by any means.

4. **Windows Update Agent (also known as Software Update Services).** The software on the device includes Windows Update Agent ("WUA") functionality that may enable your device to connect to and access updates ("Windows Updates") from a server installed with the required server component. Without limiting any other disclaimer in this Microsoft Software License Terms or any EULA accompanying a Windows Update, you acknowledge and agree that no warranty is provided by MS, Microsoft Corporation or their affiliates with respect to any Windows Update that you install or attempt to install on your device.
5. **Product Support. Contact [OEM] for support options.** Refer to the support number provided with the device.
6. **Backup Copy. You may make one backup copy of the software.** You may use it only to reinstall the software on the device.
7. **Proof Of License.** If you acquired the software on the device, or on a disc or other media, a genuine Certificate of Authenticity label with a genuine copy of the software identifies licensed software. To be valid, this label must be affixed to the device, or included on or in [OEM]'s software packaging. If you receive the label separately, it is not valid. You should keep the label on the device or packaging to prove that you are licensed to use the software. To identify genuine Microsoft software, see http://www.howtotell.com.
8. **Transfer to a Third Party.** You may transfer the software only with the device, the Certificate of Authenticity label, and these license terms directly to a third party. Before the

transfer, that party must agree that these license terms apply to the transfer and use of the software. You may not retain any copies of the software including the backup copy.

9. **Not Fault Tolerant. The software is not fault tolerant. [OEM] installed the software on the device and is responsible for how it operates on the device.**
10. **Restricted Use.** The Microsoft software was designed for systems that do not require fail-safe performance. You may not use the Microsoft software in any device or system in which a malfunction of the software would result in foreseeable risk of injury or death to any person. This includes operation of nuclear facilities, aircraft navigation or communication systems and air traffic control.
11. **No Warranties for the Software.** The software is provided “as is”. You bear all risks of using it. Microsoft gives no express warranties, guarantees or conditions. Any warranties you receive regarding the device or the software do not originate from, and are not binding on, Microsoft or its affiliates. When allowed by your local laws, [OEM] and Microsoft exclude implied warranties of merchantability, fitness for a particular purpose and non-infringement.
12. **Liability Limitations.** You can recover from Microsoft and its affiliates only direct damages up to two hundred fifty U.S. Dollars (U.S. $250.00). You cannot recover any other damages, including consequential, lost profits, special, indirect or incidental damages.

    This limitation applies to:

    - Anything related to the software, services, content (including code) on third party internet sites, or third party programs; and
    - Claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law.

    It also applies even if Microsoft should have been aware of the possibility of the damages. The above limitation may not apply to you because your country may not allow the exclusion or limitation of incidental, consequential or other damages.
13. **Export Restrictions.** The software is subject to United States export laws and regulations. You must comply with all domestic and international export laws and regulations that apply to the software. These laws include restrictions on destinations, end users and end use. For additional information, see www.microsoft.com/exporting.

Warranty Form

User's Manual for GV-Hot Swap DVR System

Thank you for purchasing the GV-Hot Swap DVR System . To help us validate your purchase and better serve you in the future, please go to http://www.geovision.com.tw/english/4_6.asp or click **GeoVision Online Registration** in My Favorite for a direct link to register online **within 30 days from the date of purchase**. Please keep this copy for your records.

Name: First (given)	**Surname (family name)**
Company Name (only if the product is owned by company):	
Mailing Address:	
City/Town:	**Province/State:**
Country:	**Postal Code:**
Telephone: (O)	**(H)**
Fax:	
E-Mail:	
Date of Purchase: (e.g. 16-APR-2008)	
Product: Please check the model and its items you purchased. **Model** ☐ **GV – 1120H** ☐ **GV – 1240H** ☐ **GV – 1480H** ☐ **GV – 2008H** ☐ **GV – 2016H** ☐ **GV – NVRH**	

NVR (GV)	NVR	NVR (Combo)	Bay Option
☐ 4 Channels	☐ 4 Channels	☐ 4 Channels	☐ 4 Bays
☐ 8 Channels	☐ 8 Channels	☐ 8 Channels	☐ 8 Bays
☐ 16 Channels	☐ 16 Channels	☐ 16 Channels	☐ 20 Bays
☐ 20 Channels	☐ 20 Channels	☐ 20 Channels	
☐ 32 Channels	☐ 32 Channels	☐ 32 Channels	
☐ _____	☐ _____	☐ _____	
Bar Code:			
Shipment Date:			

GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: +886-2-8797-8377
Fax: +886-2-8797-8335
Email: sales@geovision.com.tw
dvrsystem@geovision.com.tw
http://www.geovision.com.tw